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- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled refuelling station;
- On-site re-fuelling will be undertaken using a double skinned bowser or a refuelling truck with spill kits kept onboard;
- All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any drainage systems. A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment;
- A temporary drainage system shall be installed prior to the commencement of the construction works;
- All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors'
- All plant and machinery will be serviced before being mobilised to site;
- No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed;
- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings are not to be discharged into surface water drains/sewers;
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility;
- Foul drainage discharge from the construction compound will be transported off site to a licensed facility until a connection to the public foul drainage network has been established.

Environmental Emergency Response Procedure

An Emergency Response Plan has been prepared for the construction of the Proposed Development and is included in the CEMP which is appended to this NIS (**Appendix 6**). The Emergency Response Plan includes a procedure to be followed in the case of Environmental Emergencies, should they occur during construction. In the event of an oil/ fuel spillage, which are one of the main environmental risks that will exist at the Proposed Development site, the following procedure will be followed:

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Construction Manager will notify the appropriate regulatory body such as GCC and EPA etc. if deemed necessary.

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Air Quality and Dust Control

The following measures will be implemented to reduce the effect of dust deposition:

- Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind
- Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions
- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary
- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper.
- All vehicles to switch off engines when not in use;
- No idling vehicles;
- On-road vehicles to comply to set emission standards;
- All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and to be regularly serviced;
- Haul routes to be hard surfaced and cleaned and appropriate speed limits applied around the site;
- The methods of working will comply with all relevant legislation and best practice guidelines in reducing the environmental effects of the works.

6.2.1.2 Operational Phase

The operational phase of the Proposed Development will result in the production of foul waters and surface-water runoff which, if not adequately treated, has potential to result in indirect effects on surface and groundwater quality and, therefore, potential adverse effects on Galway Bay Complex SAC and Inner Galway Bay SPA.

6.2.1.2.1 *Mitigation*

A Civil Works Design Report has been prepared by TOBIN (see **Appendix 7**) for the Proposed Development. This details the proposed surface water and wastewater drainage proposals for the Proposed Development which have been designed to ensure that there will be no deterioration of water quality as a result of the operational phase of the Proposed Development.

The drainage proposals are summarised in Section 2.2.2 of this NIS. The key points are outlined below.

Surface Water Drainage

The management of surface water for the proposed development has been designed to comply with the philosophies of nature-based SuDS and CIRIA guidelines as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and with the requirements of Galway City Council. The surface water drainage design has incorporated a number of SuDS measures to both reduce the quantity and rate of surface water run-off discharging from the Proposed Development site during operation and to improve the overall quality of such discharges. The quantity of surface water run-off discharging from site will be reduced through the use of water butts, tree pits, rain gardens, permeable paving, detention swales, drainage kerbs with infiltration trenches and attenuation storage systems. The

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rate of surface water run-off discharging from the Proposed Development site will be controlled through the use of a hydrobrake devices which will limit run-off to Greenfield rates. The quality of surface water run-off will be improved through the use of bypass separators prior to discharge in addition to the improvements in quality gained through the attenuation and controlled release measures previously described. The inclusion of these measures in the surface water drainage design will ensure that surface waters discharging from site are of a quality and volume that will not result in any adverse effects on downstream receiving surface waters or any European sites therein.

Foul Water Drainage

All wastewater generated from the Proposed Development will outfall, via gravity, to an existing Uisce Éireann owned 225mm foul sewer line located west of the development along the southern arm junction of the adjacent roundabout and Altan road. The 225mm sewer line will require upgrade to 300mm to where it meets an existing Uisce Éireann 375mm foul network. The foul network for the Proposed Development has been designed using Causeway Flow Drainage modelling software. The pipework has been designed to provide six times the dry weather flow in accordance with Uisce Éireann Code of Practise and standard details. The proposed foul sewer design and layout is in accordance with the Irish Water Code of Practice for Wastewater Infrastructure and The Irish Water Infrastructure Standard Details. The predicted foul loading of the Proposed Development is 995 P.E. A letter has been received from Uisce Eireann confirming that a water connection can be facilitated for the Proposed Development (see **Appendix 2**).

All foul water will be discharged to the public sewer and will be treated at the Galway Mutton Island Wastewater Treatment Plant (WWTP) before ultimately discharging to the coastal waters of Galway Bay.

According to the most recently published Annual Environmental Report for Galway Mutton Island WWTP[15], the WWTP was built with a design capacity of 170,000 P.E. and currently has a remaining capacity of 27,089 P.E. The discharge from the WWTP does not have an observable negative impact on the Water Framework Status or coastal/ transitional water quality of the receiving waters. Moreover, based on the results of effluent monitoring, it is fully compliant with the Emission Limit Values as set in its EPA discharge licence. In consideration of the remaining capacity which can accommodate the predicted foul loadings associated with the operation of the Proposed Development, and the available data regarding the WWTP's current compliance in operation, there is no potential for the Proposed Development to result in adverse effects on receiving waters or European sites contained therein, with respect to foul waters generated.

6.2.2 Habitat Degradation through the Spread/ Introduction of Invasive Species

Two invasive species, which are listed on the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) and/or Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011) were recorded in, or in close proximity to, the Proposed Development during surveys undertaken to inform this assessment. Therefore, the potential for the Proposed Development to result in the spread/ introduction of these invasive species to downstream European sites, namely Galway Bay SAC and Inner Galway Bay SPA, via the surface water or local drainage network pathway was identified at the screening stage (see Section 4.1). This potential effect was further considered in Stage 2 of this assessment (See Section 5.1.1 and 5.1.2) and given the nature of the QI habitats associated with this SAC and SPA and the distance of the hydrological connection over which these invasive species would need to be carried, it was determined that there was no potential for this effect to occur. It should be noted that, during the preparation of the EIAR which accompanies the planning application, an Invasive Species Management Plan (ISMP) has been

[15] Uisce Éireann (2025). Annual Environmental Report 2024- Galway City- D0050-01.

prepared for the Proposed Development to avoid the spread of invasive species to the local environment.

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7. ASSESSMENT OF RESIDUAL ADVERSE EFFECTS

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The potential for residual adverse effects on each of the individual relevant Qualifying Features of the Screened In European Sites following the implementation of mitigation, is assessed in this section of the report.

Based on the above, in view of best scientific knowledge, on the basis of objective information, there is no potential for adverse effect on the identified QIs/SCIs and their associated targets and attributes, or on any European Site. Potential pathways for effect have been robustly blocked through measures to avoid impacts and the incorporation of best practice/mitigation measures into the project design.

Taking cognisance of measures to avoid impacts and best practice/mitigation measures incorporated into the project design which are considered in the preceding section, the Proposed project will not have an adverse effect on the integrity of any European Site.

The proposed project will not prevent the QIs/SCIs of European Sites from achieving/maintaining favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive. A definition of Favourable Conservation Status is provided below:

> *'conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as 'favourable' when:*
>
> - Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
> - The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
> - There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.'

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the Proposed Development will not adversely affect the Qualifying Interests/Special Conservation Interests associated with any European Site.

8. ASSESSMENT OF CUMULATIVE EFFECTS

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A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites where potential for adverse effects was identified in Section 4 of this report. This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities and their predicted environmental effects. A list of the plans and projects considered is provided in **Appendix 5.**

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development and was verified on the 25th September 2025. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g. individual EIARs, layouts, drawings etc.) for all relevant projects where available. The plans and projects considered include those listed in **Appendix 5.** These consisted mainly of small scale domestic and agricultural developments.

Following the detailed assessment provided in the preceding sections, it is concluded that, the Proposed Development will not result in any residual adverse effects on any of the European Sites, their integrity or their conservation objectives when considered on its own. There is therefore no potential for the Proposed Development to contribute to any cumulative adverse effects on any European Site when considered in-combination with other plans and projects.

In the review of the projects that was undertaken, no connection, that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Proposed Development.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal, no residual cumulative impacts have been identified with regard to any European Site.

9. CONCLUDING STATEMENT

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This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites.

Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Development does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded that the Proposed Development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.

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APPENDIX 1

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4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) describes the Proposed Development and its component parts. This chapter also describes the key features of the environmental controls that will be used within the development during the construction phase and the management of site operations. This description sets the basis against which the EIAR has been carried out.

The Proposed Development site which covers an area of 5.37 hectares (ha) will consist of a mix of residential units, open spaces, creche and all other site related infrastructure. The Proposed Development is a component of a larger residential development project (Proposed Project). The Proposed Project involves the construction of more than 500 residential units, and the development will require separate, individual planning applications for each part of the project.

The Proposed Development will consist of the following:

- Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
  - 4 no. 2-bed townhouses;
  - 40 no. 3-bed townhouses;
  - 21 no. 4-bed townhouses;
  - 15 no. 1-bedroom duplex apartments;
  - 46 no. 2-bedroon duplex apartments;
  - 15 no. 2-bedroom duplex houses;
  - 46 no. 3-bedroom duplex houses;
  - 114 no. 1-bedroom apartments;
  - 56 no. 2-bedroon apartments;
  - 5 no. 3-bedroom apartments.
- Demolition of existing structures (333.8 m^2);
- Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);
- The provision of new active travel cycle and pedestrian access from Millers Lane;
- Upgrades to the existing access at Kingston Road
- The provision of a childcare facility (440 m^2);
- The provision of public open space;
- The provision of 665 no. bicycle parking spaces;
- The provision of 313 no. car parking spaces;
- Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

All elements of the Proposed Development have been assessed as part of this EIAR.

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4.2 Site Setting

4.2.1 Site Description

The site is located within the townland of Knocknacarra and is approximately 3 kilometres (km) to the west of Galway City Centre. Irish Transverse Mercator (ITM) coordinates for the centre of the site are X 526636, Y 724682.

The planning application (red line) boundary area measures 5.37ha. The site itself is comprised of a mixture of agricultural grassland and brownfield. Stone walls and treelines are also present within the boundary of the site. There is an existing dwelling in the centre of the site along with some agricultural buildings. The surrounding area is urban in character and the site is surrounded by a number of residential estates and commercial and industrial buildings.

The Proposed Development site can be accessed via both the Western Distributor Road which is located to the north of the site and the Kingston Road (R337) which runs in an east west direction to the south of the site. Both of these roads provide connectivity to Galway City and beyond.

The Proposed Development site is located within the Galway Bay North hydrological catchment (Catchment 31), and the Knock [Furbo]_SC_010 hydrological sub-catchment. The Knocknacarragh stream (31K16) watercourse which is a 2nd order watercourse (part of the Knocknacarragh_010 system) is located approximately 10 metres (m) from the northeastern boundary of the Proposed Development site. It should be noted that this is not an open watercourse and appears to have been culverted in the past.

The Proposed Development site is underlain by the Spiddal groundwater body. An area deemed 'Extreme', 'High' and 'Exposed rock' groundwater vulnerability was identified in the northwest of the Proposed Development site as per EPA maps. The WFD Status 2016-2021 for the Spiddal groundwater body was deemed 'Good'.

The Proposed Development site is not located in any European sites (designated pursuant to the obligations under the Habitats Directive and Birds Directive). The Proposed Development site is located approximately 0.7km north of the Galway Bay Complex (SAC) and approximately 0.9km north of the Inner Galway Bay (SPA). The Proposed Development site is located 2.5km from Lough Corrib SAC and approximately 3.6km from Lough Corrib SPA. In this regard, an Appropriate Assessment Screening has been undertaken and a Natura Impact Statement has been prepared to accompany the application, so as to enable Galway City Council, as competent authority, to carry out a Stage Two Appropriate Assessment.

There are no protected structures or archaeological monuments located within the application site. The nearest recorded monument (GA094-111) is located c. 300 metres north-east of the site, however this is separated from the site by the Gort na Bró road. Therefore, given the distance and separation of the site from the recorded monument by the Gort na Bró road, the Proposed Development site does not fall within the zone of notification.

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Plate 4-1: View from Centre of the Site looking North-West.

Plate 4-2: View from Southern Section of the Proposed Development Site looking south towards existing residential houses.

Figure 4-1 below provides an overview of the Proposed Development site layout.

Notes:

- Do not scale from this drawing. Use figured dimensions in all cases.
- Verify dimensions on site and report any discrepancies to the Architect immediately.
- This drawing to be read in conjunction with the Architect 's Specification.
- © This drawing is copyright and may only be reproduced with the Architect 's permission.

Drawing Notes:

Unit Breakdown:

2-Bedroom + Study Townhouses	4
3-Bedroom Townhouses	40
4-Bedroom Townhouses	21
2-Bedroom Mews Duplex Apartment	2
1-Bedroom Duplex Apts.	15
2-Bedroom Duplex Houses	15
2-Bedroom Ground Floor Duplex Apts.	44
3-Bedroom Duplex Houses	46
1-Bedroom Apartments	114
2-Bedroom Apartments	56
3-Bedroom Apartments	5
Total	**362**

Issues & Revisions

Rev.	Date	Drwn	Details of Issue / Revision
P3-S-01	16.09.25	JK	PLANNING PERMISSION

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Drawing Title:
Proposed Site Layout

Job No.	Sheet Size:	Scale @A1:	Status	Purpose of Issue
P23-180D	A1_Portrait	1 : 1000	**P3**	**PLANNING PERMISSION**

Issue Date:	Drawn By:	Reviewed By:	Project - System - Spatial Zone - Level - Type - Originator - Role - Number	Revision
13/08/2025	JK	DP	**P23-180D-RAU-00-XX-XX-DR-AR-1003**	**P3-S-01**

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4.3 Construction Management

4.3.1 Construction Timing and Phasing

It is expected that the construction works will take approximately 36 months to complete.

4.3.2 Working Hours

Normal construction working hours for the development and the concurrent works will be:

- 8am - 6pm, Monday to Friday;
- 9am - 1pm, Saturday; and
- Sunday and Public Holidays - no working

It may be necessary in exceptional circumstances to undertake certain activities outside of the construction core working hours. Any construction outside of the construction core working hours will need to be agreed in advance with Galway City Council and scheduling of such works will have regard to nearby sensitive receptors.

4.3.3 Construction Phase Monitoring and Oversight

A Construction and Environmental Management Plan (CEMP) has been prepared for the Proposed Development and is included in Appendix 4-1 of this EIAR. The CEMP includes details of waste management and outlines clearly the mitigation measures and monitoring proposals that are required to be adhered to in order to complete the works in an appropriate manner. In the event that planning permission is granted for the Proposed Development, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for approval.

Routine inspections of construction activities will be carried out on a daily and weekly basis by the Senior Project Manager, Senior Engineers and Foremen to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in compliance with this CEMP and all other planning application documents. Only suitably trained staff will undertake environmental site inspections.

4.4 Construction Methodologies

This section describes the construction methodologies that will be used for the Proposed Development. Further details are also provided in the CEMP included as Appendix 4-1 of this EIAR.

The proposed anticipated construction methodology is summarised under the following main headings:

- Site Establishment
- Perimeter Fencing
- Demolition Works
- Site Excavation
- Traffic Measures and Junction Upgrade Works
- Proposed Site Roads and Footpaths
- Services and Utilities
- Residential Unit and Creche Construction
- Landscaping Works

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4.4.1 Site Establishment

Prior to the commencement of any construction, entrances to the Proposed Development site will need to be fully established with appropriate security gates. Access to the site will be via a road which connects to the Western Distributor Road to the north and also via the Kingston Road (R337) to the south.

A site compound inclusive of a parking area for construction worker's vehicles will be provided within the confines of the site. There will be no parking permitted for any vehicles associated with the Proposed Developments construction phase unless agreed with the local authority prior to works inception.

4.4.2 Perimeter Fencing

The existing site boundaries are comprised primarily of stone/block walls along with a section of hedgerows and treelines. Perimeter hoarding will be provided around the site, where required. This will be in the form of heras fencing, hoarding or similar, to provide a barrier against unauthorised access from the public areas. A controlled access point in the form of a site entrance will be kept locked outside of normal working hours.

The fencing and hoarding will be well maintained and painted or covered with graphics portraying project information. Due to the nature of the works and the construction traffic using the site entrance, appropriate signage will be provided along relevant footpaths and site entrances to alert pedestrians to the traffic exiting/entering the site. Likewise, appropriate signage will be installed within and outside the site to alert drivers of the pedestrians crossing ahead. The contractor will be required to undertake the following.

- Conduct a comprehensive site induction for all site personnel prior to commencing work.
- Ensure all site staff possess valid and up-to-date Safe Pass certification.
- Maintain on-site security staff at all times during the construction phase.
- Install secure access control measures, including gated entry points for authorised personnel.
- Separate public pedestrian access from construction vehicular access,
- Ensure restricted access is maintained to the works

4.4.3 Demolition Works

Demolition works will be carried out on existing agricultural sheds (333.8m^2) during the construction phase. The sequencing of the demolition works will be decided by the main contractor following detailed site survey of the buildings and surrounding area. Such a survey will provide detail on the:

- The condition of the buildings and demolition methods recommended.
- The location and removal methods for any toxic or hazardous materials.
- The type and location of adjoining and surrounding premises which may be affected by noise, vibration, dust and removal of the structures.

Demolition works at the Proposed Development site will primarily involve the following:

- Disconnection of services
- Soft strip of the buildings to be demolished;
- Complete structural demolition of the buildings;

- Grubbing up of the rising walls, foundations and redundant underground services within the footprint of the demolished structures.

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4.4.4 Site Excavation

Soil Stripping and temporary stockpiling of soils and other excavated materials will be required around the site as the Proposed Development progresses. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Gas Networks Ireland, Eir, GCC, etc.,) will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- All excavated material will be reused for future landscaping works or for backfill of excavations.
- All stockpiles will be covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.
- In all circumstances, excavation depths and volumes will be minimised.
- All excavated spoil will be stockpiled and contained entirely within the confines of the site. Alternatively, spoil will be transported off site to a designated waste facility.
- Earthworks will only be carried out during periods of dry weather.

4.4.5 Traffic Measures and Junction Upgrade Works

As outlined in the Traffic and Transportation Assessment which has been prepared by Tobins Consulting Engineers for the Proposed Development, vehicular access to the Proposed Development will be gained via the Altan arm of the Western Distributor Road / Bothar Stiofain / Altan roundabout and from the Kingston Road (R337) at the location of an existing laneway.

As part of the enabling works for the development, vehicular access to the proposed development will be gained from the Western Distributor Road, from an existing roundabout. There is also a second proposed access off the Kingston Road, north of the Galway Golf Club, in the vicinity of an existing laneway. The laneway will undergo upgrade works in accordance with Design Manual for Urban Roads and Streets (DMURS).

Pedestrian paths and cycle routes will be provided throughout the site, linking onto the existing Western Distributor Road and Kingston Road infrastructure

All internal roads will be designed in accordance with the requirements of DMURS and the Recommendations for Site Development Works for Housing Areas. Autotrack vehicle swept path analysis will be completed for the proposed site layout for a Large Car, a Refuse Truck and a Fire Tender to ensure the vehicles can safely manoeuvre around the Proposed Development site.

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4.4.6 Proposed Site Roads and Footpaths

Site Roads and Parking Areas

The construction methodology for the proposed access roads and parking areas is as follows:

- Excavation will take place until a competent stratum is reached.
- The competent stratum will be overlain with up to 500mm of granular fill and compacted.
- A layer of geogrid/geotextile may be required at the surface of the competent stratum.
- A final hard surface layer will be placed over the excavated road to provide a road profile to accommodate construction traffic.
- Prior to completion of the construction works on site, the finished asphalt road surface will be applied.

Footpaths

- Excavation will be required to reach the desired levels,
- Shuttering will be installed along the section where footpaths are to be installed,
- A layer of granular material (clause 804 or similar) will be placed within the shuttered area. This layer will then be compacted.
- Once the layer of aggregate material has been compacted to the desired level, concrete will be poured into the shuttered area. The concrete will be levelled with the appropriate falls and allowed to cure for the appropriate time period.
- Once the concrete has cured, the shuttering will be removed.
- Mitigation measures to control potential concrete runoff are outline din Section 3.3 below.

4.4.7 Services and Utilities

Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Back fill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications.

It is proposed to direct wastewater generated from the Proposed Development to an existing Uisce Eireann owned 225mm foul sewer line located west of the site, along the southern arm junction off the adjacent roundabout and Altan Road. The 225mm foul sewer outfalls to an existing Uisce Eireann 375mm foul network.

The foul sewer network has been designed using Causeway Flow drainage modelling software. All gravity pipes will be thermoplastic structured wall pipes, with diameters ranging from 150mm to 225mm. Gradients will vary between 1/21 and 1/200, and flow velocities will remain within the required range of 0.75 to 2.5 m/s, in accordance with Uisce Éireann standards. A pre-connection application was submitted to Uisce Eireann for the wastewater demand from the Proposed Development, and a Confirmation of Feasibility (CoF) statement has been received.

As outlined in the accompanying Civil Design Report which has been prepared by Tobins Consulting Engineers, the proposed Storm water drainage infrastructure incorporates the philosophies of nature-based Sustainable Drainage Systems (SuDS) to manage surface water runoff quantity and quality.

Water will be provided to the Proposed Development via a new connection to a nearby Uisce Eireann owned 315mm watermain which runs along the Kingston Road.

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The installation of services and connections to the residential units will be carried out as follows:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e., ESB, Gas Networks Ireland, Eir, GCC etc.) will be contacted and all drawings for all existing services sought.
- A traffic management plan will be produced if required for connection works to the existing service network.
- A road opening licence will be obtained where required for connection to existing services.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions.
- All excavated material will be removed to an authorised waste recovery facility or, if suitable, stockpiled and reused for backfilling and landscaping where appropriate.
- Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification.
- Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes.
- The as built location of the ducting/pipework will be surveyed using a total station/GPS.
- Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench.
- The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths.
- The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate.

4.4.8 Residential Unit and Creche Construction

The residential dwellings along with the proposed creche will be constructed using the following methodology:

- The area where excavations are foundations are to be installed will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Bord Gáis, Eircom, GCC etc.) will be contacted and all drawings for all existing services sought.
- The area of each building will be marked out using ranging rods or wooden posts and the soil and overburden stripped and removed to nearby storage area for later use in landscaping.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer and appropriately shuttered reinforced concrete will be laid over it.
- Foundations will be shuttered and cast with reinforced concrete as per the Design Engineer's specification.
- The block work walls will be built up from the foundation including a Damp Proof Course (DPC) and the floor slab constructed, having first located any ducts or trenches required by the follow on mechanical and electrical contractors.

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- The block work will then be raised to wall plate level and the gables & internal partition walls formed. Scaffold will be erected around the outside of the buildings for these works.
- Any concrete flooring slabs will be lifted into position using an adequately sized mobile crane.
- The timber roof trusses will then be lifted into position using a teleporter or mobile crane depending on site conditions. The roof trusses will then be felted, battened, tiled and sealed against the weather.
- Windows, electrics, plumbing and all other building components and services will be installed in as timely a manner as is possible.
- Each building will be inspected and certified by the project design engineer at the appropriate stages of construction.

4.4.9 Landscaping Works

Prior to the completion of works on the Proposed Development site, the landscaping works will be carried out. This work will be carried out before the completion of each phase in order to ensure that the development will be an aesthetically pleasing place for residents to live. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. During site preparation works, where topsoil is stripped prior to excavation, this material will be retained on site for use in landscaping.

Cunnane Stratton Reynolds have prepared detailed landscape drawings and a Landscape Design Report which can be found in Appendix 6-3 below.

4.5 Management of Construction Phase Activities

4.5.1 Environmental Management

All proposed construction activities on the site of the Proposed Development are outlined in the CEMP. The CEMP includes details of drainage, overburden management and waste management. In the event planning permission is granted for the Proposed Development, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and developed though the detailed design to be submitted to the Planning Authority for approval.

4.5.2 Protecting Water Quality

Prior to the commencement of any subsequent construction activities, the necessary mitigation measures will be put in place to ensure that no silt laden water runoff generated at the site will flow to nearby watercourses or drains thus ensuring the protection of surface water during the works. This will involve confirming the location of all existing services and delineating between drainage systems. Surface waters will be managed to ensure the prevention of run off from areas where excavation occur does not result in silt laden water entering the existing storm water network.

Particular emphasis will also be placed on hazardous materials management and prevention of spills or leaks of fuel oils to ensure watercourses and groundwater are not impacted. Section 5 of the CEMP provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects

Waters will not be discharged directly to any existing surface water sewers or drains. Particular emphasis will also be placed on hazardous materials entering the surface water management system as well as spill or leaks of fuel oils.

Excavation works have the potential to encounter sub-surface waters and ground water. In the event of encountering groundwaters during excavation, the excavation will be de-watered using a pump equipped with a silt bag on the discharge outlet. The pumped water will be discharged to either the existing surface water drainage system or to a suitably vegetated area within the site boundary. Where discharge to a vegetated area is required, the area will be enclosed with silt fencing, as necessary, to prevent sediment-laden runoff and ensure compliance with best practice environmental controls. In order to avoid hydrocarbons encountering groundwaters onsite, Section 3 of the CEMP presents mitigation measures to avoid the release of hydrocarbons onsite.

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Surface and storm water generated during the operational phase will be captured by the proposed drainage network within the confines of the site boundary as outlined in Section 2 of the CEMP.

4.5.2.1 Prevention Pollution Control Measures

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering any of the wider environments including watercourses/drains within or near the site:

- The site boundary will be fenced off with heras fencing (or similar) prior to works commencing to protect adjacent habitats and to prevent any egress of machinery outside of the site during construction activities.
- There are no watercourses on site and surface water will not be directly discharged into any external water bodies, surrounding land, or adjacent roadways. Any run-off generated on-site will undergo the necessary filtration process as previously outlined.
- The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site.
- Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall.
- Excavations will be carried out using a suitably sized excavator and, in all circumstances, excavation depths and volumes will be minimised.
- Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. Material stockpiles will be kept at least 10m from any manholes. Depending on the nature of the excavated material, the stockpiles of excavated materials will be sealed with a digger bucket to reduce the potential for sediment runoff. These areas will be surrounded with silt fencing, if deemed necessary to prevent runoff.
- The minimum number of soil/subsoils and bedrock material should be removed from site. Soil may be reused for landscaping elsewhere on the site. However, any excess construction material shall be removed from the area and sent to an authorized waste recovery facility
- Works shall not take place at periods of high rainfall and shall be scaled back if or suspended if heavy rain is forecast during excavation works.
    - High rainfall' is defined as follows:
    - >10 mm/hr (i.e. high intensity local rainfall events);
    - >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day);
- Rainfall total greater than monthly average recorded in 7 consecutive days (prolonged heavy rainfall over a week).
- Stockpiles will also be covered with plastic sheeting during high rainfall to prevent runoff.
- In the event of encountering groundwaters during excavation, groundwater will be pumped out of the excavation using a pump equipped with a silt bag on the

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discharge pipe, if necessary, to capture any silty material prior to subsequent natural percolation to ground. The area surrounding the silt bag will be surrounded by silt fencing if deemed necessary.

- As construction advances there may be a small requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into silt bags prior to overland discharge allowing water to percolate naturally to ground. Overland discharge, if required, will be located within the confines of the site boundary.
- No wastewater will be discharged on-site during the construction phase.
- Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites, as outlined in *Control of Water Pollution from Construction Sites, guidance for consultants and contractors* (CIRIA, 2001). This guidance will be adhered to throughout the construction phase to ensure that surface water generated on site contains minimum sediment.

Details of control measures which will be implemented at the site, if required are included in the Plates below.

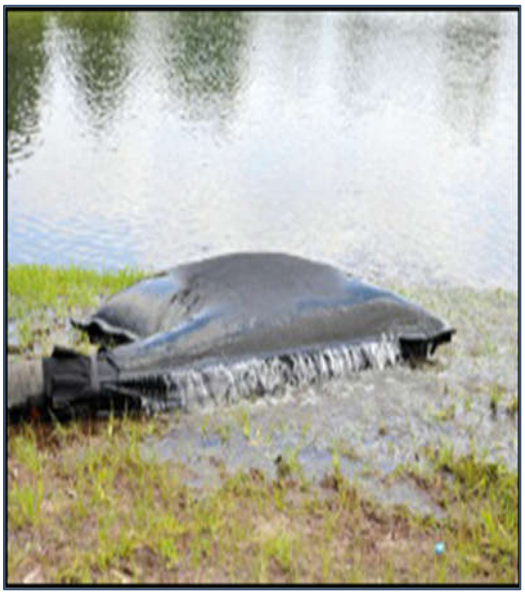

Plate 4-3.Silt Bag with water being pumped through.

Plate 4-4. Silt Bag under inspection.

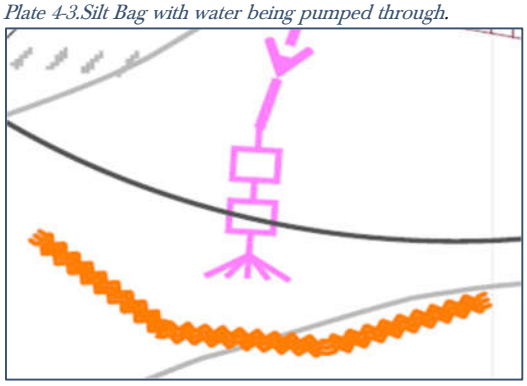

Plate 4-5. Silt Fence surrounding the discharge from Silt Bag.

Plate 4-6. Embedded Silt Fence

(Note: Approximate locations for such a control measure cannot be provided as it cannot be identified where such measure may be adopted on site prior to commencement.)

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4.5.2.2 Cement Based Products Control Measures

The complete washing out of concrete trucks will not be permitted at the site during the construction phase. Suppliers will be directed back to their own facility to complete the washout process. However, a washout area for chute cleaning will be provided at various locations in close proximity to the concrete pour locations.

The following mitigation measures are proposed to avoid release of cement leachate from the site:

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. Where possible pre-cast elements for culverts and concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

4.5.2.3 Refuelling, Fuel and Hazardous Materials Storage

The following measures are proposed to avoid release of hydrocarbons at the site:

- Storage/refuelling will be located in and carried out in a designated area of the construction site, located a suitable distance from excavation works. This area should be underlain by concrete hard standing, and tanks should be inspected for leaks regularly. Spill kits should be supplied at these stations and staff should be trained in their use and in spill control. Drainage from these areas shall be diverted for collection and not discharged into waterbodies without treatment and other best management practices.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Off-site refuelling will occur at a controlled fuelling station.
- On-site refuelling will take place by direct refuelling from the delivery truck or from fuel stored within a bunded fuel tank. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.
- Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- All diesel or petrol pumps required onsite will be operated within bunded units.
- The small volume of fuels, lubricants and hydraulic fluids that will be stored at the site will be placed within an appropriately bunded storage area within the boundaries of the Proposed Development site.
- Storage bunds/trays, if required will be constructed of an impermeable membrane (HDPC Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.

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- Spill kits will be available in each item of plant to deal with any accidental spillage in and outside the refuelling area.
- All plant and machinery will be serviced before being mobilised to site.
- Potential impacts caused by spillages etc. during the construction phase will be reduced by keeping spill kits and other appropriate equipment on-site.
- Spill kits will be used to deal with any accidental spillage in and outside the refuelling area. Spill control measures as outlined fully in the CEMP accompanying this application will be adhered to.
- Harmful materials shall be stored on site for use in connection with the construction works only. These materials shall be stored in a controlled manner.
- An emergency plan for the construction phase to deal with accidental spillages will be contained within Emergency Response Plan.

4.5.3 Dust Control

Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e. soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the approach road. The measures below will also prevent construction debris arising on the public road network.

Proposed means to control dust include:

- Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind
- Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions
- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary
- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- When necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper.

4.5.4 Noise Control

The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Construction phase noise is typically assessed in light of guidance set out in British Standards Institution (BSI) (2014) *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise*[1], as well as the National Roads Authority (NRA) (now TII) (2014) *Good Practice Guidance for the Treatment of Noise during the Planning of National Road*

[1] *British Standards Institution (BSI). (2014) BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise. London: BSI.*

Schemes[2]. Although the NRA document is not directly relevant to the Proposed Works, it has seen increasing application to non-road projects in recent years in the absence of any specific Irish guidance.

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All construction plant used on-site will be required to comply with maximum sound power levels set out in *Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000*[3] on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, implemented in Ireland by the *European Communities* (Noise Emission by Equipment For Use Outdoors) *Regulations, 2001* (S.I. 632 of 2001)[4], as amended by the *European Communities* (Noise Emission by Equipment for Use Outdoors) (Amendment) *Regulations, 2006* (S.I. 241 of 2006)[5].

Proposed measures to control noise include:

- Construction equipment for use outdoors shall comply with the European Communities Regulations– Noise Emission by Equipment for Use Outdoors – SI 241 - 2006.
- Diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts.
- Where practical, separation distances to any locations of frequent human use where noise would have the potential to interfere with typical activities will be maximised through appropriate on-site positioning of plant. Plant will also be sited so as to maximise potential screening provided by intervening topographical features, structures, and barriers
- Plant with the potential of generating noise or vibration will be placed as far away from sensitive properties as permitted by site constraints.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All construction plant and equipment to be used on-site will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations;
- Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers;
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works;
- Compressors will be of the “sound reduced” models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;
- Machines which are used intermittently will be shut down during those periods when they are not in use;
- Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation.
- Local areas of the access route will be condition monitored and maintained if necessary.
- It is recommended that drivers of heavy goods vehicles (HGVs) associated with the development extend due care and courtesy to other road users. Excessive use of and unnecessary engine racing will be avoided.

The proposed construction working hours are as follows:

- 08:00 – 18:00 Monday to Friday

[2] *National Roads Authority (NRA) (now TII) (2014) Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes.*
[3] *Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000*
[4] European Communities *(Noise Emission by Equipment For Use Outdoors)* Regulations, 2001 *(S.I. 632 of 2001)*
[5] European Communities *(Noise Emission by Equipment for Use Outdoors) (Amendment)* Regulations, 2006 *(S.I. 241 of 2006)*[5].

- 09:00 to 13:00 on Saturday.
- Closed Sundays or Public Holidays.

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Deviation from these times will only be allowed in exceptional circumstances where written approval has been received from the planning authority.

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise and vibration limits at their discretion. However, there are several publications commonly used in Ireland to set appropriate construction criteria.

The Transport Infrastructure Ireland (TII) *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (2014)[6] provides detailed information on the permissible construction noise levels for various hours of operation. The maximum allowable construction noise level limits, as per the TII publication, are listed below:

- Monday to Friday 07:00 to 19:00hrs 80 dB
- Monday to Friday 19:00 to 22:00hrs 65 dB
- Saturdays 08:00 to 16:30hrs 75 dB
- Sundays & Bank Holidays 08:00 to 16:30hrs 65 dB

All complaints of noise received during the construction phase will be logged in a register and investigated immediately. Details of follow-up action will be included in the register.

4.5.5 Vibration Control

Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance. Guidance relevant to the protection of building structures is contained in the following documents:

- **British Standards Institution (BSI). (1993)** *BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration*. **London: BSI**[7].
- **British Standards Institution (BSI). (2014)** *BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration*. **London: BSI**[8].

Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the demolition and construction phases to control vibration levels:

- The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons

[6] ***Transport Infrastructure Ireland*** *(TII), 2014. Guidelines for the Treatment of Noise and Vibration in National Road Schemes. Dublin: Transport Infrastructure Ireland*
[7] ***British Standards Institution (BSI). (1993)*** BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration***. London: BSI***
[8] ***British Standards Institution (BSI). (2014)*** BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration***. London: BSI***

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working on site, taking into account the nature of land use in the areas concerned and the duration of work.

- Where reasonably practicable, low vibration working methods should be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations.
- Vibration should be controlled at source and the spread of vibration should be limited.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises should be replaced by other less intrusive plant and/or methods of working.
- Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings.
- Where processes could potentially give rise to significant levels of vibration, on-site vibration levels should be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in machinery or project designs are introduced. A method of vibration measurement should be agreed prior to commencement of site works.
- On those parts of a site where high levels of vibration are likely to be a hazard to persons working on the site, prominent warning notices should be displayed.
- Offsite fabrication - In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task specific.
- Best practice vibration control measures will be employed by the contractor.
- A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.

4.5.5.1 Waste Management

The CEMP, Appendix 4-2 of this EIAR, provides a waste management plan (WMP) which outlines the best practice procedures during the construction phase of the project. The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Development. Disposal of waste will be a last resort.

A comprehensive site-specific Construction Demolition Waste Management Plan (CDWMP) has also been prepared by Tobins Consulting Engineers. The purpose of the Construction & Demolition Waste Management Plan (CDWMP) will ensure that waste storage and movement within the development takes place in a manner which complies with relevant legislation and has a minimal impact on the nearby existing commercial and residential areas and ensures, where prevention is not possible, that maximum reuse, recycling and recovery of waste with diversion from landfill, wherever possible.

The plan estimates the type and quantity of waste to be generated from the proposed development during the Construction and Demolition phases and provides a strategy for managing the different waste streams. Guidance will also be given to ensure appropriate method of transportation of waste is used to prevent littering or other serious environmental pollution.

The Waste Management Act 1996 (Act) and its subsequent amendments provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that any waste related activity must have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the site of the development to ensure that all contractors

hired to remove waste from the site have valid Waste Collection Permits to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

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4.5.5.2 Third Schedule of Non-native Species

The introduction and/or spread of Third Schedule non-native species such as Japanese Knotweed, Himalayan Knotweed, Himalayan Balsam, Gunnera, and Giant Hogweed for example, could result in the establishment of the species and this may have knock on effects on the surrounding environs.

During the Invasive Species Survey, which was carried out on the 15th of May 2024, Sea Buckthorn and Three Leaved Garlic were both recorded within the Proposed Development boundary. As a result of these third schedule non-native invasive species being present on the Proposed Development site, a site-specific Invasive Species Management Plan has been created. This is attached as Appendix 6-2 of the Biodiversity chapter.

Appropriate control measures will be incorporated into the design and construction phase of the development to ensure that the relevant measures (outlined in the following section below) will be implemented.

4.5.5.2.1 *Treatment and Management Methodologies*

Preliminary Stages

A dedicated invasives species survey of the Proposed Development site will be carried out three months prior to commencement of works on site to determine if the species have spread further throughout the site. Surveys should be undertaken during the summer months (June - July) when the extent of infestation will be fully visible.

The treatment methodologies have been carefully considered and are proposed to eradicate Sea buckthorn and Three-corned leek and manage their spread further within the Proposed Development site. These treatment measures are considered as part of the planning application. An ecologist will be on site to supervise the treatment. The infested areas will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.

Three- Cornered Leek

The following management is proposed in relation to Three-cornered Leek:

- An ecologist will be on site to supervise the treatment.
- The infested area will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.
- Three-cornered leek can be controlled through chemical means. This invasive plant species will be treated chemically;
    - Chemical treatment is the chosen treatment method. It is advised to treat the plant *in-situ* and avoid disturbance and the increased risk for spread and dispersal.
    - This plant can be treated with a Glyphosate based chemical herbicide on an annual basis. It is recommended that a Glyphosate-based herbicide will be applied as a spot treatment to individual plants, or by foliar and stem spray in early spring before the plant flowers which typically happens between April and June. It is best to manually break the leaves prior to applying the chemical to insure it enters the leaf. Follow-up annual treatments are necessary as large numbers of shoots may re-appear the following year as may new seedlings.

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- The timing of the treatment applied is vital for the eradication of three-cornered leek. The control methods must be implemented in March or April when the leaves of the three-cornered leek are fully formed. Control methods should not be carried out if plants have finished flowering and produced seed (from the outset of May) as the movement of plants at this stage in the plant's cycle can cause a further spread of the invasive species.
- Three-cornered leek produces vast amounts of seeds annually and these seeds can persist and remain dormant in the soil for years before germinating. Due to this, a monitoring programme will be established to eradicate the invasive plant where the plants currently exist onsite. Therefore, it is key to undertake the control and treatment measures for a consecutive number of years to eradicate the seed bank and bulbs. The area will need to be surveyed by an ecologist in March/April, May and again in September for the presence of Three-cornered leek for a minimum of 3 years after the treatment to ensure no further spread is taking place.

Sea Buckthorn

Mechanical/ physical removal of Sea buckthorn controls the spread of the invasive species by either damaging or removing the plant material via physical action, i.e., uprooting, felling, slashing, mowing, grubbing etc. Juvenile Sea buckthorn saplings were recorded within the site. It is anticipated that the construction phase will span 2 years and as such it is likely to mature with time, in the absence of control measures being implemented.

The recommended treatment methodology for Sea buckthorn includes;

- Any juvenile new shoots of Sea buckthorn will be removed by hand pulling or manual removal using hand tools. The plant will be physically cut and dug up from the root either by hand or using an excavator to grub up the plant.
- Larger stumps will be cut and the stumps painted with Glyphosate herbicide.
- Following clearance of woody material, any necessary excavation of the ground will be undertaken. As sea-buckthorn can readily regenerate from root and rhizomatous material present in soil, any soil arising from areas infested with sea-buckthorn must be contained and disposed of appropriately.
- The vegetation material can be disposed of by burning or incineration.
- If for any reason, burning of plant material is not feasible on-site this material and the soil potentially contaminated within root or rhizome fragments must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery should be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used must be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.

4.5.6 Traffic Management

As part of the Construction Stage Safety Plan for the works a Traffic Management Plan (TMP) will be prepared by Tobins Consulting Engineers in accordance with the principles outlined below and held on site. It will comply at all times with the requirements of;

- Chapter 8 of the Department of the Environment Traffic Signs Manual, current edition, published by The Stationery Office, and available from the Government Publications Office, Sun Alliance House, Molesworth Street, Dublin 2;
- Guidance for the Control and Management of Traffic at Road Works (June 2010) prepared by the Local Government Management Services Board;

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- Any additional requirements detailed in the Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (DMURS).

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction and supervisory staff,
- Excavation plant, dumper trucks and materials delivery vehicles involved in site development works,

The following mitigation measures will be implemented, as required in order to minimise movement and potential impacts associated with construction phase traffic:

- The aggregates required for the construction of the Proposed Development will be sourced, as much as is possible and practicable, from quarries and suppliers located as near as possible to the Proposed Development. This will reduce the potential for any negative impacts associated with the haulage of the materials to the site of the Proposed Development. Existing soils and subsoils located on the site will be used where possible to reduce the amount of such materials required for import onto the site. Aggregates will be transported to the site in tarpaulin covered trucks.
- Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction access locations.
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds.
- Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with Galway City Council.
- Consolidation of delivery loads to / from the site and management of large deliveries on site to occur outside of peak periods,
- Use of precast/prefabricated materials where possible,
- Adequate storage space on site to be provided where possible,
- Scheduling of movements to outside peak traffic times and school pick-up/drop off times.
- All vehicles to switch off engines when not in use,
- No idling of vehicles at the site,
- Vehicle cleaning and wheel washing to take place on leaving the site,
- On-road vehicles to comply to set emission standards,
- All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust systems and to be regularly serviced,
- Haul routes to be hard surfaced and cleaned and appropriate speed limits applied around the site.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel.
- Safe and secure pedestrian facilities provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.

4.5.6.1 Staff and Parking

The site is readily accessible by bus services within nearby walking distance. On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. Construction employees will

generally depart after 17:00. It should be noted that a large proportion of construction workers may arrive in shared transport.

Construction traffic will not be permitted to park on the public roads or within the general area outside the main site. Restricted parking facilities will be provided by the contractor. Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with Galway City Council.

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4.6 Operational Phase

The Proposed Development will require periodic maintenance throughout the operational phase. The operation of a residential development is not a recognized source of environmental emissions or nuisance and so there will be no adverse effects associated with its operation.

The storm water drainage infrastructure for the Proposed Development will incorporate the philosophies of nature based Sustainable Urban Drainage Systems (SuDS). It is proposed to divert and then culvert the existing surface water drains within the site so that they run beneath the development and outfall to their natural existing destination. . The proposed storm water drainage system will be designed to cater for all surface water runoff from all hard surfaces in the Proposed Development including roadways, roofs, parking areas etc. All stormwater generated on site from roadways and roofs will discharge via an Oil/Petrol Interceptor to soakaways/attenuation units. The soakaway/attenuation units will be strategically situated within the site. Any existing open drains located within the site will be diverted if necessary and culverted so that they run beneath the development and outfall to their natural existing destination.

Water will be provided to the Proposed Development via a new connection to a nearby Uisce Eireann owned 315mm watermain which runs along the Kingston Road.

The proposed foul drainage layout for the development will outfall, via gravity, to an existing Uisce Eireann owned 225mm foul sewer line located west of the development along the southern arm junction of the adjacent roundabout and Altan road. The 225mm foul sewer outfalls to an existing Uisce Eireann 375mm foul network.

It is proposed that all pipes will be thermoplastic structured wall pipes with the maximum and minimum sizes being between 150mm and 300mm respectively. The maximum and minimum pipe gradients shall fall between 1/30 and 1/200. The sewer network has been designed to cater for six times the dry weather flow rate. A flow of 150 litres head per day plus an additional 10% allowance to account for infiltration within a new development have been considered in the foul sewer design as per Uisce Eireann.

4.6.1 Property Management – Operational Stage

A property management company will be formed at an early stage of the development to ensure that all property management functions are dealt with for the development.

The property management company has a number of key responsibilities including compiling the service charge budget for the development for agreement with the owners' management company. The service charge budget covers such items as cleaning, landscaping, refuse management, utility bills, insurance, maintenance, and security. A full detailed summary of the provisions which the estate management company and appointed managing agents will be responsible for is outlined in the Estate Management Strategy Report which is prepared by Aramark and accompanies this EIAR and planning application.

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4.6.2 Sustainable Energy Use

A Climate Scheme Sustainability Statement has been prepared by Moloney Fox Consulting for the Proposed Development and is outlined in Appendix 4-2. The Statement outlines how a target Building Energy Rating (BER) rating of A2 will be achieved using heat pump solutions as heating provisions.

Design intent for apartments and townhouses has considered this also. Aluminium radiators will be provided in each space complete with thermostatic radiator valves (TRVs) as required. These radiators are specifically designed to work with low temperature heating systems and have quicker heat up periods and transfer rates than standard steel panel radiators

Demand Control Ventilation will be provided to provide controlled natural ventilation to each dwelling. Demand Control Ventilation (DCV) is an energy-saving strategy used in building ventilation systems to optimize the amount of fresh air brought into a space based on its actual occupancy and ventilation requirements. DCV systems improve indoor air quality while reducing energy consumption by delivering the right amount of ventilation air when and where it is needed.

DCV systems utilize sensors and controls to monitor various factors such as occupancy, carbon dioxide (CO2) levels, temperature, humidity, and volatile organic compounds (VOCs) in the space. These sensors provide feedback to the ventilation system, allowing it to modulate the amount of fresh air supplied accordingly.

Light emitting diode (LED) lighting and advanced lighting controls shall be implemented into the houses and apartments. LEDs have become the lighting technology of choice in modern apartment buildings due to their numerous advantages over traditional lighting options. LED lights are highly energy-efficient, consuming significantly less electricity than incandescent or fluorescent bulbs. They convert a higher percentage of electrical energy into light, minimizing wasted energy as heat.

LED lighting and lighting control systems have transformed modern buildings, offering energy-efficient illumination, improved user experiences, and sustainable practices. The combination of LED technology and advanced controls provides residents with flexibility, comfort, and cost savings while promoting environmental stewardship in residential communities.

4.7 Decommissioning Phase

It is not intended that the proposed buildings will be removed, as permanent planning permission is being sought for this development. The Proposed Development will form an integral part of the local housing needs. Therefore, it is intended that the Proposed Development will be retained permanently and will not be decommissioned.

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APPENDIX 2

CONFIRMATION OF FEASIBILITY

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Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Lathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Michael Naughton

Tobins Consulting Engineers

Fairgreen House
Fairgreen Road
Galway
H91AXK8

24 September 2025

Our Ref: CDS24003705 Pre-Connection Enquiry
Site At, Kingston Lands, Galway

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 363 unit(s) (Phase 1) at Site At, Kingston Lands, Galway, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection**
  - Feasible without infrastructure upgrade by Irish Water
  - Water Treatment Plant (WTP)
    There is sufficient capacity for the proposed development.

  - Water Network
    - The preferred connection point for the proposed development would be to the 315mm diameter HDPE water main on the Kingston Road.
    - Please ensure a phasing plan for the proposed development is submitted with each Connection Application for our review.

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

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- **Wastewater Connection**
  - Feasible without infrastructure upgrade by Irish Water
  - Wastewater Treatment Plant (WWTP) There is sufficient capacity for the proposed development.

    Wastewater Network

  - Please ensure a phasing plan for the proposed development is submitted at connection application stage for Uisce Éireann (UE) review.
  - Additional units/phases will be subject to a separate UE pre-connection enquiry (PCE) submission.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

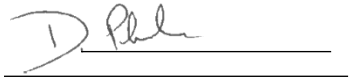
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

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Section A - What is important to know?

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What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

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Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie

Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness

or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

RECEIVED: 16/10/2025

Michael Naughton
TOBIN
Fairgreen House
Fairgreen Road
Galway
H91AXK8

RECEIVED: 16/10/2025

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

22 July 2025

Re: Design Submission for Site At, Kingston Lands, Galway (the "Development") (the "Design Submission") / Connection Reference No: CDS24003705

Dear Michael Naughton,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Uisce Éireann has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before you can connect to our network you must sign a connection agreement with Uisce Éireann. This can be applied for by completing the connection application form at www.water.ie/connections. Uisce Éireann's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU)(https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Uisce Éireann's network(s) (the "**Self-Lay Works**"), as reflected in your Design Submission. Acceptance of the Design Submission by Uisce Éireann does not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Uisce Éireann representative:
Name: Alicia Ros Bernal
Email: ailciarosbernal.bernal@water.ie

Yours sincerely,

Dermot Phelan
Connections Delivery Manager

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
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Appendix A

Document Title & Revision

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- 11893-2005 Proposed Watermain Layout- Sheet 1 of 2
- 11893-2006 Proposed Watermain Layout- Sheet 2 of 2

- 11893-2001 Proposed Drainage Layout- Sheet 1 of 2
- 11893-2002 Proposed Drainage Layout- Sheet 2 of 2

- 11893-2090 Foul Network Longsections (Sheet 1 of 4)
- 11893-2091 Foul Network Longsections (Sheet 2 of 4)
- 11893-2092 Foul Network Longsections (Sheet 3 of 4)
- 11893-2093 Foul Network Longsections (Sheet 4 of 4)

Additional Comments

The design submission will be subject to further technical review at connection application stage.

Uisce Éireann cannot guarantee that its Network in any location will have the capacity to deliver a particular flow rate and associated residual pressure to meet the requirements of the relevant Fire Authority, see Section 1.17 of Water Code of Practice.

*For further information, visit **www.water.ie/connections***

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Uisce Éireann will not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.

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APPENDIX 3

Eileen Corley

From: Eileen Corley
Sent: Friday 3 October 2025 11:18
To: Eileen Corley
Subject: FW: DAU Ref: G Pre00169/2024 FW: 240142 - Knocknacarra Residential Development Scoping Exercise
Attachments: Knocknacarra.pdf

RECEIVED: 16/10/2025

From: Housing Manager DAU <Manager.DAU@npws.gov.ie>
Sent: Friday 13 June 2025 08:46
To: Eileen Corley <ecorley@mkoireland.ie>
Subject: RE: DAU Ref: G Pre00169/2024 FW: 240142 - Knocknacarra Residential Development Scoping Exercise

Caution: This is an external email and may be malicious. Please take care when clicking links or opening attachments.

Good morning Eileen,

The Department response for this proposed development was emailed to you on 12 June 2024, I have attached same here for your convenience.
I do see that the reference number in your subject line is different to that on the response issued to you.
That was an error on our part, the correct reference is G Pre 00159/2024.
I hope this clarifies matters, however if you have any further queries please do not hesitate to contact me.

Kind regards,
Colette

Colette McCormack
Executive Officer

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Oifigí an Rialtais, Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Government Offices, Newtown Road, Wexford, Co Wexford, Y35 AP90
Telephone: 053 9117434

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

RECEIVED: 16/10/2025

Your Ref: 240142
Our Ref: **G Pre00159/2024**
(Please quote in all related correspondence)

12 June 2024

Eileen Corley
MKO
Tuam Road
Galway
H91 VW84

Via email: ecorley@mkoireland.ie cc: tmadden@mkoireland.ie

Re: EIA scoping document for proposed Large-Scale Residential Development at Knocknacarra, County Galway

A Chara

I refer to correspondence received in connection with the above.

Outlined below are nature conservation observations/recommendations of the Department.

The Department welcomes the correspondence in relation to the proposed Large-Scale Residential development at Knocknacarra, County Galway. These observations are intended to assist you in relation to identifying potential impacts on European sites, other nature conservation sites, and biodiversity and environmental protection in general, in the context of the current proposal. The observations here are not exhaustive, and are made without prejudice to any recommendation that may be made by this Department in the future. Data collected and surveys carried out in connection with this proposed development may raise other issues that have not been considered here.

The Department notes that MKO is preparing an Environmental Impact Assessment Report (EIAR) for the proposed residential development at Knocknacarra, County Galway. This proposal will also be subject to the Article 6(3) Appropriate Assessment (AA) Process. The Department notes that an AA Screening, and if required a Natura Impact Statement (NIS), will be prepared.

General ecological considerations

Assessment of the direct, indirect and cumulative significant effects of the project on biodiversity should be made with regard to:

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- Natura 2000 sites, i.e. Special Areas of Conservation (SAC) designated under the EC Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas (SPA) designated under the EC Birds Directive (Directive 2009/147 EC)

- Habitats and species protected under the Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur), Bird species protected under the Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur)

- Other designated sites, or sites proposed for designation, such as Natural Heritage Areas and proposed Natural Heritage Areas, Nature Reserves and Refuges for Fauna or Flora, designated under the Wildlife Acts 1976 to 2023

- Species protected under the Wildlife Acts including protected flora (note Flora (Protection) Order 2022)

- Important bird areas such as those identified by Birdwatch Ireland

- Features of the landscape, which are of major importance for wild flora and fauna, such as those with a "stepping stone" and ecological corridors function, as referenced in Article 10 of the Habitats Directive

- Other habitats of ecological value in a national to local context (such as those identified as locally important biodiversity areas within Local Biodiversity Action Plans and County Development Plans)

- Red data book species

- Biodiversity in general

Reference should be made to the up-to-date National Biodiversity Action Plan, Galway City Development Plan, Galway City Biodiversity Action Plan, as well as the All-Ireland Pollinator Plan.

<u>Likely significant effects on European sites:</u>
The Department notes that the Galway Bay Complex SAC (Site Code: 000268) is located 1km to the southwest and that Lough Corrib SAC (Site Code: 000297) is 2.8km east of the site. The scope of works includes these for assessment however, the Inner Galway Bay SPA (Site Code: 004031) and Lough Corrib SPA (Site Code: 004042) have not been mentioned, and should be included for assessment.

In relation to potential significant effects on a European site, assessments are carried out with respect to the implications for the conservation objectives of that site. Where available,

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the attributes, targets and notes specified as part of the conservation objectives will determine the scope and detail of surveys, data and analyses required to produce an NIS, if required. The NIS should present the scientific examination of all necessary evidence and data. It should be noted that the conservation objectives of a European site are wider in scope than the qualifying interests or special conservation interests alone, and will encompass other habitats and species, as well as aspects of habitat structure and function, and existing environmental problems and trends. The final analyses are carried out with respect to whether the conservation objective is to maintain or to restore the favourable conservation condition of the habitat or species in question within the site.

The key concerns in relation to likely significant effects of the project alone and in-combination with other plans and projects, on these European sites, in view of their conservation objectives, include the following:

- Disturbance of potential resting/roosting sites for Annex II species (e.g. Lesser Horseshoe Bat)

- Increased disturbance and displacement of species, and progressive habitat loss, fragmentation and deterioration surrounding European sites arising from the development, and loss of important ecological corridors

- Added pressures on existing water services

Likely significant effects on the environment:
Under Article 10 of the Habitats Directive, member states must maintain and where possible enhance landscape features to improve the coherence of the Natura 2000 network. Particular note should be given to the EU Green Infrastructure Strategy. Opportunities for landscape enhancement should be considered within the landscape plan which should seek to integrate Green Infrastructure and 'Nature Based Surface Water Management' into the project design and consideration of Sustainable. Drainage Systems (SuDS) requirements. At a minimum, it is advised that areas of woodland and treelines on and bordering the site should be retained and protected by appropriate setback distances, landscaping and boundary treatments.

The development of the site should be consistent with protective policies and objectives in the Galway City Development Plan. Recent habitat mapping is available for much of Galway City and should be sourced. Substantial data on species, particularly the more mobile species such as bats, are also available for parts of the city and the environmental assessment documentation associated with the proposed N6 Galway City Ring Road should be consulted.

The Landscape Management Plan should be guided by valuable resources available as part of the National All-Ireland Pollinator Plan[1] and planting of potential invasive species such as Cotoneaster (*Cotoneaster franchetii*) avoided.

[1] https://pollinators.ie/resources/

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The procedures outlined in 'Guidance Note 08/18 Bats and Artificial Lighting in the UK' and Eurobats 'Guidelines for Consideration of Bats in Lighting Projects' should be consulted with respect to the overall lighting design. This should also take into consideration Dark Sky Ireland guidance "Best practice in public lighting", notably that "warm" colour temperatures should be used at 2700K or less. Final sign off and testing of the lighting scheme should be carried out at night to ensure that the lighting is directional and targeted and should not spill over onto treelines and hedgerows which can have adverse impacts on bats and biodiversity in general. Bat species are strictly protected under Annex IV of the Habitats Directive.

Ecological surveys required:

Ecological surveys should be carried out in accordance with recognised methodologies, and should provide a comprehensive description and evaluation of the ecological baseline of the site, and an assessment of the likely direct, indirect and cumulative effects of all aspects of the proposed development.

Surveys should be carried out by suitably qualified persons at an appropriate time of the year depending on the species being surveyed for. The Environmental Impact Assessment Report (EIAR) should include the results of the surveys, and detail the survey methodology and timing of such surveys. It is expected by the Department, that in any survey methodology used, best practice will be adhered to and if necessary non-Irish methodology adapted for the Irish situation. The Chartered Institute of Ecology and Environmental Management's (CIEEM's) recent advice titled 'Advice note on the Lifespan of Ecological Reports and Surveys' should be noted.

Specific attention should be given to the assessment of:

- Hedgerows and ecological connectivity
- Bird usage of the site and surrounding areas (notably for feeding and roosting)
- Bats, including building inspections, roost presence/absence activity surveys, walked transects and automated static detectors

Any losses of semi-natural habitat associated with this proposed development such as woodland, scrub, hedgerows and other habitats should in the first instance be avoided where possible, and mitigated for where not.

Mitigation measures

Mitigation measures need to be assessed against the adverse effects the project or plan is likely to cause (alone or in-combination with other projects or plans). To assess mitigation measures, the following tasks must be completed:

- List each of the measures to be introduced (e.g. noise bunds, tree planting)

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- Explain how the measures will avoid the adverse impacts on the site
- Explain how the measures will reduce the adverse impacts on the site

Then, for each of the listed mitigation measures:

- Provide evidence of how they will be secured and implemented and by whom
- Provide evidence of the degree of confidence in their likely success
- Provide a timescale, relative to the project or plan, when they will be implemented

Where residual impacts remain, further mitigation measures may be required.

Monitoring

Evidence should be provided of how the mitigation measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified. The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in his role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at manager.dau@npws.gov.ie, or to the following address:

The Manager
Development Applications Unit (DAU)
Government Offices
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Sinéad O' Brien

Sinéad O' Brien
Development Applications Unit

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APPENDIX 4

Planning and Environmental Consultants

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Baseline Bat Report

Kingston Stables, Proposed Large Scale Residential Development at Knocknacarra Co. Galway

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DOCUMENT DETAILS

Client:	**Kingston Stables Ltd**
Project Title:	**Kingston Stables, Proposed Large Scale Residential Development at Knocknacarra Co. Galway**
Project Number:	**240142-b**
Document Title:	**Baseline Bat Report**
Document File Name:	**BBR F1 – 2025.10.16 - 240142-b**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	D1	23/05/2025	DC	SF
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1. INTRODUCTION

1.1 Purpose of this Report

MKO was commissioned to complete a comprehensive assessment of the potential effects on bats, as part of an Environmental Impact Assessment Report (EIAR) for an application for planning permission of a proposed Large-scale Residential Development (LRD), at Knocknacarra, Co. Galway. This report provides details of the bat surveys undertaken, including survey design, methods and results, and recommendation to safeguard bats. An impact assessment based on the information contained in this report is carried out within the accompanying EIAR. The Proposed Development for which planning permission is being sought is a component of a larger residential development known as the Proposed Project. The Proposed Project involves the construction of more than 500 residential units and forms part of an overarching masterplan for a wider landholding referred to as the EIAR Study Area. It should be noted that the surveys and results outlined in this report cover the entire EIAR Study Area.

The report presents the ecological baseline recorded within the EIAR Study Area in relation to bats. Initial surveys were carried out in August 2023 to inform the project masterplan. Subsequent surveys were carried out between April and September 2024. Surveys included a suitability appraisal and inspection of the habitats and potential roosting features present on site. Manual activity surveys and roost inspection surveys were carried out, as well as ground-level static detectors surveys. Ground levels static detectors were deployed at different locations across the site for a minimum of 10 nights during Autumn 2023 and Spring and Summer 2024.

The main objective of the surveys was to assess the site for its suitability for foraging and commuting bats, as well as assess and inspect any structures for potential roosts, including maternity roosts. The bat surveys were designed to establish the nature, scale and locations of potential bat activity within the site.

The bat survey and assessment were informed by a desk study and with reference to the following guidelines:

- *Bat Survey Guidelines: Traditional Farm Buildings Scheme. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny (Aughney, T., Kelleher, C. & Mullen, D., 2008)).*
- *'Bat Workers' Manual' (3rd edn). JNCC, Peterborough (Mitchell-Jones, A.J. & McLeish, A.P. (eds) 2004).*
- *The Lesser Horseshoe Bat Conservation Handbook, Vincent Wildlife Trust (Schofield, HW., 2008).*
- *Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edn.) (Collins, 2023)*
- *Bat Roosts in Trees (Andrews, 2018)*
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006a)*
- CIEEM (2013) *Competencies for Species Surveys: Bats.* Chartered Institute of Ecology and Environmental Management, Winchester.
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006b)*
- *British Bat Calls: A Guide to Species Identification (Russ, 2012)*
- *Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)*
- *UK Bat Mitigation Guidelines, (Reason, P. F. and Wray, S. 2023)*
- *Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP, 2023)*
- *Lesser Horseshoe Bat Species Action Plan 2022-2026 (NPWS & VWT, 2022)*

1.2 Development Description

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Planning permission is sought by Kingston Stables Ltd for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 5.37 ha on lands located at Knocknacarra, Galway.

The Proposed Development will consist of the following:

- Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
    - 4 no. 2-bed townhouses;
    - 40 no. 3-bed townhouses;
    - 21 no. 4-bed townhouses;
    - 15 no. 1-bedroom duplex apartments;
    - 46 no. 2-bedroon duplex apartments;
    - 15 no. 2-bedroom duplex houses;
    - 46 no. 3-bedroom duplex houses;
    - 114 no. 1-bedroom apartments;
    - 56 no. 2-bedroon apartments;
    - 5 no. 3-bedroom apartments.
- Demolition of existing structures (333.8 m^2);
- Vehicular access to the Proposed Development from a permitted road (Planning Reference 24/60370 refers);
- The provision of new active travel cycle and pedestrian access from Millers Lane;
- Upgrades to the existing access at Kingston Road
- The provision of a childcare facility (440 m^2);
- The provision of public open space;
- The provision of 665 no. bicycle parking spaces;
- The provision of 313 no. car parking spaces;
- Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

The proposed site lies in Galway city and is accessed via the R337 westbound. The primary land use in the area is agriculture and husbandry. Previously cleared areas within the site is left unmanaged. The wider landscape consists of urban development and a golf course immediately to the south. A location map of the Proposed Development site is provided in Figure 1-1.

The Proposed Development described above for which planning permission is being sought is a component of a larger residential development known as the Proposed Project. The Proposed Project involves the construction of more than 500 residential units and forms part of an overarching masterplan for a wider landholding referred to as the EIAR Study Area. It should be noted that the surveys and results outlined in this report cover the entire EIAR Study Area.

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Map Legend

EIAR Study Area Boundary

Planning Application (red line) Boundary

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0 1 2 km

Drawing Title

Site Location

Project Title

King Knocknacarra LRD East

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
240142-b	Fig 1-1
Scale	Date
1:100,000	15/10/2025

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1.3 Policy and Legislation

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All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places. The lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011, as amended).

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976, as amended). Under this legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the agreement of the National Parks and Wildlife Service (NPWS) and a derogation licence must be granted before works commence.

The NPWS monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years in the form of an Article 17 Report. The most recent report for the Republic of Ireland was submitted in 2019. Table 1-1 summarises the current conservation status of Irish bat species and identified threats to Irish bat populations.

Table 1-1 Irish Bat Species Conservation Status and Threats (NPWS, 2019). Pressures and Threats are ranked from medium importance (M) to high importance (H) in the 2019 Article 17 report.

Bat Species	Conservation Status	Principal Threats
Common pipistrelle *Pipistrellus pipistrellus*	Favourable	**A05** Removal of small landscape features for agricultural land parcel consolidation (M) **A14** Livestock farming (without grazing) [impact of anti-helminthic dosing on dung fauna] (M) **B09** Clear--cutting, removal of all trees (M) **F01** Conversion from other land uses to housing, settlement or recreational areas (M) **F02** Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (M) **F24** Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (M) **H08** Other human intrusions and disturbance not mentioned above (Dumping, accidental and deliberate disturbance of bat roosts (e.g. caving) (M) **L06** Interspecific relations (competition, predation, parasitism, pathogens) (M) **M08** Flooding (natural processes) **D01** Wind, wave and tidal power, including infrastructure (M)
Soprano pipistrelle *Pipistrellus pygmaeus*	Favourable	
Nathusius' pipistrelle *Pipistrellus nathusii*	Unknown	
Leisler's bat *Nyctalus leisleri*	Favourable	
Daubenton's bat *Myotis daubentoni*	Favourable	
Natterer's bat *Myotis nattereri*	Favourable	
Whiskered bat *Myotis mystacinus*	Favourable	
Brown long-eared bat *Plecotus auritus*	Favourable	
Lesser horseshoe bat *Rhinolophus hipposideros*	Inadequate	

1.4 Bat Roosting Behaviour

Bats use a variety of natural and manmade structures as roosting or resting places. The type of roost and its level of use is determined by its function in the bat life cycle. Table 1-2 provides a summary of different types of bat roosts.

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Table 1-2 Bat Roost Types and Definitions

Roost Type	Definition
Day	Where individuals or small groups of male's rest/shelter in the day but are rarely found by night in summer.
Night	Where bats rest/shelter at night but are rarely found in the day.
Feeding	Where individuals rest/feed during the night but are rarely found during the day.
Transitional	Used by a few individuals for short periods of time prior to or following hibernation.
Swarming	Where large numbers gather in late summer to autumn. Important mating sites.
Mating	Where mating takes place in late summer to winter.
Maternity	Where females give birth and raise their young.
Hibernation	Where bats are found during winter (constant cool temperature and high humidity).
Satellite	An alternative roost found in close proximity to the main nursery colony.

There are currently no clear guidelines to determine the significance of a bat roost. All the largest roosts of lesser horseshoe bat in Ireland are of international importance and it is anticipated that all large Leisler's bat roosts (>100) would also have international significance (NRA, 2006). Table 1-3 provides some criteria for determining the significance of different building roosts, as determined by the Bat Expert Panel of the Heritage Council in 2003 (NRA, 2006).

Table 1-3 Level of Importance of Various Roosts

Species	Indicator	Significance
Lesser horseshoe bat	Special Area of Conservation	Very significant
	If present	Significant
Whiskered bat	>10	Very significant
	If present	Significant
Natterer's bat	>10	Very significant
	If present	Significant
Daubenton's bat	Maternity roost	Significant
Leisler's bat	Maternity roost	Significant
Common pipistrelle	Maternity roost	Significant
Soprano pipistrelle	Maternity roost	Significant
Brown long-eared bat	Maternity roost	Significant

The likelihood of detecting active roosts is determined by the timing of the roost survey. In general;

- April surveys may detect transitional roosts used by bats following hibernation and prior to summer roosting.

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- May-August surveys may detect maternity colonies and male/non-breeding female summer roosts.
- August surveys are best to determine maximum counts of adult and juvenile bats.
- August – October surveys may detect swarming and mating bats.
- September and October surveys may detect transitional roosts used by bats following the dispersal of maternity colonies and prior to hibernation.
- Day, night, feeding and satellite roosts may be found anytime between April and October.
- November – March surveys may detect hibernacula.

1.5 Statement of Authority

MKO employs a dedicated bat unit within its Ecology team, experienced in scoping, carrying out, and reporting on bat surveys, as well as producing impact assessments in relation to bats. MKO ecologists have relevant academic qualifications and are qualified in undertaking surveys to the levels required. MKO's Ecology team holds a bat derogation licence from NPWS. The licence is intended for professionals carrying out surveys with the potential to disturb roosting bats (i.e. roost inspections). Graduate and seasonal ecologist staff are included under the licence under condition of being accompanied by more experienced colleagues.

Survey scoping was prepared by Sara Fissolo. The daytime walkover survey and inspections were carried out by Sara Fissolo and David Culleton. Manual activity surveys were carried out by David Culleton, Kate Greaney, Laura McEntegert, Mairead Kavanagh, Fiona Killeen and Charlie Meehan. Data manual ID were carried out by David Culleton and Charlie Meehan. This report was prepared by David Culleton, was reviewed by Sara Fissolo, and was approved by Aoife Joyce. Staff's roles and relevant training are presented in Table 1-4 below.

Table 1-4 Project team qualifications and training.

Staff	Role	Qualifications and Training
Aoife Joyce (B.Sc., M.Sc.) 6 years' experience	Project Director	B.Sc. (Hons) Environmental Science, University of Galway, Ireland. M.Sc. (Hons) Agribioscience, University of Galway, Ireland. Advanced Bat Survey Techniques – Trapping, biometrics, handling (BCI), Bat Impacts and Mitigation (CIEEM), Bat Tree Roost Identification and Endoscope Training (BCI), Bats in Heritage Structures (BCI), Bats and Lighting (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics).
Sara Fissolo (B.Sc.) 4 years' experience	Project Ecologist	B.Sc. (Hons) Ecology and Environmental Biology, University College Cork, Ireland. Advanced Bat Survey Techniques (BCI), Bat Impacts and Mitigation (CIEEM), Bats in Heritage Structures (BCI), Bat Care (BCT), Bats and Lighting (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics).
David Culleton (B.Sc., M.Sc.) 2 years' experience	Bat Ecologist	B.Sc. (Hons) Zoology, University College Cork, Ireland. M.Sc. (Hons) Conservation Behaviour, Atlantic Technological University, Galway, Ireland. Bat Detector and Survey Training (BCI), Kaleidoscope Pro Analysis (Internal), Endoscope Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).
Charlie Meehan (B.Sc., M.Sc.)	Seasonal Bat Ecologist	B.A. History and Classical Studies, National University of Ireland, Galway M.Sc., Sustainable Environments, National University of Ireland, Galway

		Kaleidoscope Pro Analysis (Wildlife Acoustics), Endoscope Training (Internal), Structure and Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal)
Laura McEntegert (B.Sc.) **3 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science, National university of Ireland, Galway Bat Handling Training Course (BCI), Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement - (CIEEM), Kaleidoscope Pro Analysis (Wildlife Acoustics). Endoscope Training (Internal), Emergence and Re-Entry Surveys (Internal) Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal).
Kate Greaney (B.Sc., M.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science National university of Ireland, Galway, M.Sc. (Hons) Climate Change, Agriculture, and Food Security (MScCCAFS) National university of Ireland, Galway Kaleidoscope Pro Analysis (Wildlife Acoustics). Endoscope Training (Internal), Emergence and Re-Entry Surveys (Internal) Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal)
Mairead Kavanagh (B.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science National university of Ireland, Galway AASR and NIS for applications for clearfelling, reforestation, thinning, CCF, and forest road licenses. Experienced in the undertaking of impact assessments, evaluating scope, habitat and species identification, conducting project research, in-field surveys, data analysis and scientific report writing. Plant identification and fieldwork skills. Fossitt habitat identification, including habitat assessments in a forestry setting. Internal training Bat Detector and Survey Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).
Fiona Killeen (B.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Environmental Science, University of Galway, Ireland Internal training Bat Detector and Survey Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).

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2. METHODOLOGY

2.1 Desktop Study

A desktop review of published material was undertaken to inform all subsequent field studies and assessments. The aim of the desktop review was to identify the presence of species of interest within the site and surrounding region.

The following list describes the sources of data consulted:

- *Review of online web-mappers: National Parks and Wildlife Service (NPWS) mapping.*
- *Review of NPWS Article 17 Report.*
- *Review of the publicly available National Biodiversity Data Centre web-mappers.*
- *Review of specially requested records from the NPWS Rare and Protected Species Database for the hectads which overlap with the study area.*
- *Adopted Galway County Development Plan 2022-2028*
- Galway City Development Plan 2023 -2029 – Appropriate Assessment
- *BCI Database*
- *Review of NPWS Lesser Horseshoe Bat national dataset*

2.1.1 Bat Species' Range

EU member states are obliged to monitor the conservation status of natural habitats and species listed in the Annexes of the Habitats Directive. Under Article 17, they are required to report to the European Commission every six years. In April 2019, Ireland submitted the third assessment of conservation status for Annex-listed habitats and species, including all species of bats (NPWS, 2019).

The 2019 Article 17 Reports were reviewed for information on bat species' range and distribution in relation to the location of the EIAR Study Area.

2.1.2 National Bat Database of Ireland

The National Bat Database of Ireland and the National Lesser Horseshoe Bat Database holds records of bat observations received and maintained by Bat Conservation Ireland. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. The database was searched for bat presence and roost records within a 10km radius of the EIAR Study Area, as well as general landscape suitability for bats.

2.1.3 Designated Sites

The potential for the proposed works to impact on sites that are designated for nature conservation is considered in separate Ecological Impact Assessment (EcIA) and Appropriate Assessment Screening (AASR) reports. Special Areas of Conservation (SACs) are designated under EU Habitats Directive. The European Sites that are within the Zone of Likely Impact, with bats identified as Qualifying Interests, are listed in Section 3.1.3 below.

Natural Heritage Areas (NHAs) are designated under the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. Any identified NHAs and pNHAs designated for the protection of bats are presented in Section 3.1.3 and potential for impacts was fully considered.

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2.1.4 Habitat and Landscape

2.1.4.1 Ordnance Survey Mapping

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the site and general landscape were examined for suitable foraging, commuting or roosting habitats including woodlands and forestry, hedgerows, tree lines and watercourses.

2.1.4.2 Geological Survey Ireland

The Geological Survey Ireland (GSI) online mapping tool and University of Bristol Speleological Society (UBSS) Cave Database for the Republic of Ireland were consulted for any indication of natural subterranean bat sites, such as caves, within 10km of the proposed site (BCI, 2012) (last searched on the 13th March 2024).

2.1.4.3 National Monuments

The archaeological database of national monuments was reviewed for any evidence of manmade underground structures, e.g. souterrains, that may be used by bats (last searched on the 13th March 2024).

2.1.5 Previous Surveys

MKO reviewed any documentation of previous ecological assessments carried out in proximity to the site to inform the survey scope and determine what species composition and bat activity has been recorded in the wider area. A summary of relevant results from previous surveys is provided within the report.

2.2 Field Study

2.2.1 Bat Habitat Appraisal

The bat surveys described below cover the entire EIAR Study Area as shown in Figure 1-1. An initial bat habitat appraisal was undertaken by two surveyors in August 2023, using the since updated Collins (2016) guidelines. A second walkover survey of the EIAR Study Area was carried out during daylight hours on the 20th March 2024. All bat habitat assessments have since been updated to adhere to the current (Collins, 2023) guidance as a result of the 2024 survey. The landscape features on the site were visually assessed for potential use as bat roosting habitats and commuting/foraging habitats using a protocol set out in BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn.) (Collins, 2023). The aim of the survey was to identify suitable bat habitats within the site.

Table 4.1 of the 2023 BCT Guidelines identifies a grading protocol for assessing structures, as well as commuting/foraging habitat for bats, which is summarised in Table 2-1. The protocol is divided into five Suitability Categories: *High, Moderate, Low*, *Negligible and None*. Table 4.2 of the 2023 BCT Guidelines identifies a grading protocol to assess trees, which is divided into three Suitability Categories: NONE (No suitability), FAR (Further Assessment Required), and PRF (Potential Roosting Feature present). This initial tree grading protocol can inform a preliminary roost assessment (PRA) to determine the available tree-roosting resource within the site, depending on whether a PRF could accommodate a small number of bats (PRF-I) or a larger roost, including maternity roosts (PRF-M). More information on PRAs is provided below.

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Table 2-1 BCT protocol for bat habitat appraisals (Collins, 2023)

Assessment	Rationale
High	Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. Continuous, high-quality, well-connected habitats, connected to known roosts.
Moderate	A structure used by bats due to their size, shelter, protection, conditions and surrounding habitat, but are unlikely to support a roost of high conservation status, and suitable, connected habitats.
Low	Structures with one or more potential roost sites that could be used by an individual bat opportunistically, and suitable but isolated habitats that could be used by a small number of bats.
Negligible	No obvious features present, but a level of uncertainty remains.
None	No habitat features likely to be used by roosting, foraging or commuting bats.

2.2.1.1 Preliminary Roost Assessment

A search for roosts was undertaken within the EIAR Study Area by three licenced ecologists to inspect any structures and to identify any potential roost features (PRFs).

The western section of the site was initially visited in August 2023 and all structures present were subject to an interior inspection. The site was re-visited in March and August 2024. All structures identified within the site were again assessed for their potential to support roosting bats. A systematic search of all accessible interiors, including all attic spaces, was undertaken. The exterior of each building was inspected first from ground level and included all accessible windowsills, walls, eaves, roof ridge and roof slates. Inspections were carried out with the aid of torches, a ladder, an endoscope, a thermal camera and binoculars, and searched for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises, as well as potential access points into the structure.

The EIAR Study Area contains a number of trees isolated or within treeline habitats. Roosting suitability was assessed at feature level, and areas were marked in accordance to BCT Guidance (Collins, 2023) during the initial walkover surveys to inform need for further surveys and assessment.

Trees present within the site/within the proposed development footprint were examined from ground level for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other PRFs identified by Andrews (2018).

Ten structures and fourteen trees were assessed and are described in Section 3.2.1 below.

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2.3 Bat Activity Surveys

2.3.1 Presence/Absence and Night Bat Walkover Surveys

Manual activity surveys included presence/absence surveys focusing on features identified as having potential for roosting bats, as well as night-time bat walkovers (NBW). For each of the surveys, surveyors were equipped with active full spectrum bat detectors, Batlogger M (Elekon AG, Lucerne, Switzerland). Where possible, species identification was made in the field and any other relevant information was also noted, e.g., numbers, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications, as detailed in Section 2.4. The survey effort is summarised in Table 2-2 and presented in Figure 2-1.

Table 2-2 Bat Activity survey effort

Date	Surveyors	Type	Sunrise/Sunset	Weather
03/08/2023	Ryan Connors & Laura Granicz	Roost Emergence & Walkover	22:43	15°C, Dry, Calm
24/04/2024	Laura McEntegert & Fiona Killeen	Night-time bat walkover	20:56	14°C, Dry, Calm
02/05/2024	David Culleton & Charlie Meehan	Roost Emergence	21:08	13°C, Drizzle, Calm
20/05/2024	David Culleton & Mairead Kavanagh	Roost Emergence	21:38	14-16°C, Dry, Light Breeze
06/06/2024	David Culleton & Kate Greaney	Night-time bat walkover	20:17	13°C, Dry, Light Breeze
03/07/2024	Laura McEntegert & Charlie Meehan	Roost Emergence	22:06	13°C, Dry, Light Breeze
04/09/2024	David Culleton & Kate Greaney	Roost Emergence	21:59	14°C, Dry, Light Breeze

2.3.1.1 Presence/Absence Surveys

Four structures identified during the bat habitat appraisal as having potential to host roosting bats were subject to presence/absence surveys in the form of dusk emergence surveys. Rationale for survey effort was based on guidelines proposed by Collins in Tables 7.1 and 7.2 (Collins, 2023).

Surveyors were located at various vantage points with a focus on potential access point and roosting features identified during the daylight walkover surveys. The purpose was to identify any bat species, numbers, access points and roosting locations within each the PRF structure. Night vision aids (NVAs), including a thermal camera and an infrared camera, aided the 2024 survey effort, as detailed below. Surveys were carried out in favourable weather conditions (Table 2-2). Roost emergence surveys commenced at least 15 minutes before sunset and concluded approximately 1.5 hours after sunset.

Night Vision Aids

The use of NVAs is now considered standard best practice for bat activity surveys. MKO employs thermal camera equipment (InfiRay Eye II V2.0 and Pixfra RANGER R625). The thermal camera, mounted on a tripod, was used during roost surveys to identify potential roosting hotspots and monitor emergence activity. The camera was fully monitored by a surveyor, who was equipped with a bat detector to record bat echolocation calls.

Footage from NVAs was saved and reviewed in office in full, with any instances of emergence marked for future use.

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2.3.1.2 Night-time Bat Walkover

Manual activity surveys also comprised night-time bat walkovers at dusk, which were carried out on the 3rd August 2023, and on the 24th April and 6th June 2024. The aim of this survey was to observe bat species using the site and visually assess bat behaviour and important features used by bats within the site.

The walkovers were undertaken by two surveyors, recording bats in real time. Surveys commenced at sunset and were completed within 2 hours after sunset. Surveyors were equipped with one active full spectrum bat detector. The walkover routes were prepared with reference to the proposed layout, desktop and walkover survey results, as well as any health and safety considerations and access limitations. As such, they generally followed existing roads and tracks. The transect routes are presented in Figure 2-1.

2.3.2 Static Detectors Surveys

In 2023, five full spectrum SM4 bat detectors (Wildlife Acoustics, Maynard, MA, USA), were deployed during the main bat activity period to record bat activity for an extended period. The detectors were deployed on the 3rd August 2023 and collected on the 1st September 2023. The five locations of static detectors were selected to represent the range of habitats present within the areas of the site accessible at the time, and particularly suitable bat habitats. This data informed the scope for further survey effort in 2024.

In 2024, six full spectrum SM4 bat detectors were deployed across the site. Detectors were deployed on the 2nd of May 2024 and collected on the 20th May 2024. They were deployed in the same six locations on the 3rd July 2024 and collected on the 30th July 2024. The detector locations were spread out across the site, including areas not previously surveyed in 2023, and covered a range of seasons i.e. spring, summer, autumn.

Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. Detectors were set to record from 30 minutes before sunset until 30 minutes after sunrise. The Song Meter automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates. Static detector locations are shown in Figure 2-1 and presented in Table 2-4.

Table 2-3 Static Detector Locations

Year	Detector ID	IG Reference	Habitat
2024	D01	M 26867 24816	Scrub
	D02	M 26822 24685	Hedgerow
	D03	M 26789 24589	Treeline, Scrub
	D04	M 26625 24463	Treeline, Stone wall
	D05	M 26638 24656	Stone wall, Hedgerow
	D06	M 26627 24765	Stone wall, Hedgerow
	D01A	M 26623 24467	Treeline

2023	D02A	M 26822 24691	Stone wall, Treeline
	D06A	M 26626 24760	Scrub, Stone wall
	D07A	M 26754 24793	Spoil
	D08A	M 26785 24962	Treeline, Stone wall

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2.4 Bat Call Analysis

All recordings were later analysed using bat call analysis software Kaleidoscope Pro v.5.6.8 (Wildlife Acoustics, MA, USA). The aim of this was to identify, to a species or genus level, what bats were present within the EIAR Study Area. Bat species were identified using established call parameters, to create site-specific custom classifiers. All identified calls were also manually verified.

Echolocation signal characteristics (including signal shape, peak frequency of maximum energy, signal slope, pulse duration, start frequency, end frequency, pulse bandwidth, inter-pulse interval and power spectra) were compared to published signal characteristics for local bat species (Russ, 1999). *Myotis* species (potentially Daubenton's bat *(M. daubentonii),* Whiskered bat *(M. mystacinus),* Natterer's bat *(M. nattereri)*) were considered as a single group, due to the difficulty in distinguishing them based on echolocation parameters alone (Russ, 1999). The echolocation of Soprano pipistrelle *(P. pygmaeus)* and Common pipistrelle *(P. pipistrellus)* are distinguished by having distinct (peak frequency of maximum energy in search flight) peak frequencies of ~55 kHz and ~46 kHz respectively (Jones & van Parijs, 1993). Some overlapping is possible between these species: where no certainty could be achieved, calls were identified to genus level.

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2023). A bat pass was defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15s duration. All bat passes recorded in the course of this study follow these criteria, allowing comparison. Due to the volume of bat activity data recorded, where multiple bat passes were recorded within the same registration, rarer or harder to record species were identified. Underreporting of common species is possible using this method, and is accounted for within the assessment.

Echolocation calls by Brown long-eared bats (*Plecotus auritus*) are intrinsically quiet and hard to record by static equipment. All data collected, including Noise files and Auto ID files are checked to ensure all calls for this species have been captured. However, a level of underrepresentation is expected for this species and is accounted for in the assessment of activity levels.

Echolocation by Lesser horseshoe bats (*Rhinolophus hipposideros*) is directional and can be missed by detectors, particularly manual detectors. MKO employs omni-directional microphones to limit under-recording for the species.

2.5 Assessment of Bat Activity Levels

The online database tool Ecobat (mammal.org.uk) is recommended by Collins to assess bat activity levels within a site. This web-based interface, launched in August 2016, allows users to upload activity data and to contrast results with a comparable reference range, allowing objective interpretation. Uploaded data then contributes to the overall dataset to provide increasingly robust outputs. Ecobat generates a percentile rank for each night of activity and provides a numerical way of interpreting levels of bat activity in order to provide objective and consistent assessments.).

Ecobat was unavailable for a cross-site analysis of static data as the platform has been undergoing maintenance since late 2022 with no proposed timeline of a relaunch. Therefore, activity levels were assessed based on professional experience gained from performing bat surveys in a wide variety of Irish habitats.

All statistical analyses and graphical representations in this report were conducted using R (version 4.3.2), and RStudio (Version 2024.09.+375.). R is a powerful statistical programming language and provided the framework for data manipulation and statistical testing. To allow this, data were standardised into bat passes per hour. RStudio, as an integrated development environment for R, facilitated efficient coding, visualization, and reproducibility. The 'ggplot2' package in R was particularly instrumental in creating the detailed graphs presented in the results section.

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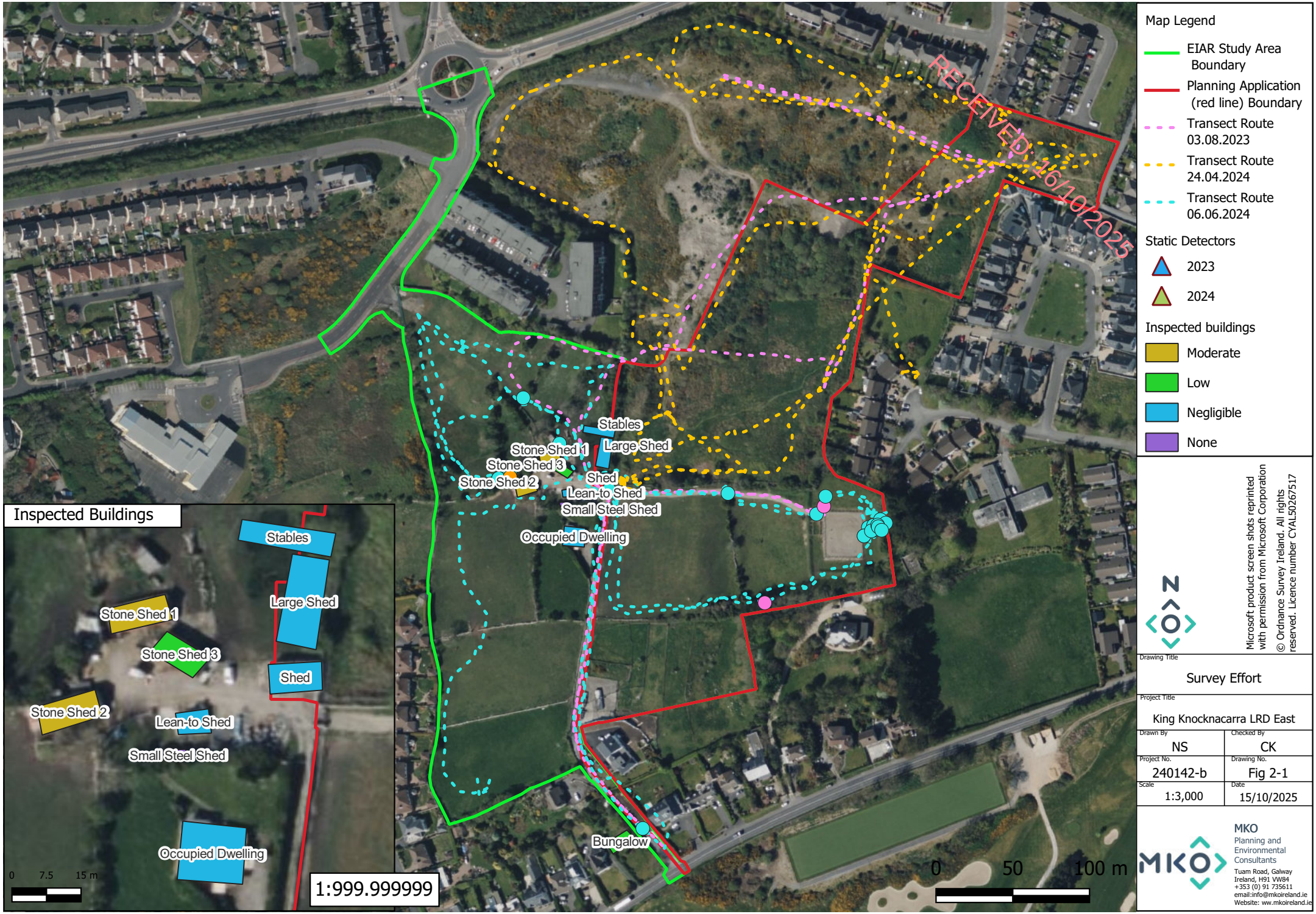
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Stables
Large Shed
Stone Shed 1
Stone Shed 3
Stone Shed 2
Shed
Lean-to Shed
Small Steel Shed
Occupied Dwelling
Bungalow
Inspected Buildings
Stables
Large Shed
Stone Shed 1
Stone Shed 3
Shed
Stone Shed 2
Lean-to Shed
Small Steel Shed
Occupied Dwelling
0 7.5 15 m
1:999.999999
0 50 100 m
Map Legend
EIAR Study Area Boundary
Planning Application (red line) Boundary
Transect Route 03.08.2023
Transect Route 24.04.2024
Transect Route 06.06.2024
Static Detectors
2023
2024
Inspected buildings
Moderate
Low
Negligible
None
N
Microsoft product screen shots reprinted with permission from Microsoft Corporation
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Drawing Title
Survey Effort
Project Title
King Knocknacarra LRD East
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Drawing No.
Fig 2-1
Scale
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3. RESULTS

3.1 Desktop Study

3.1.1 Galway City Development Plan 2023 -2029

The Galway City development plan 2023-2029 – Appropriate Assessment was searched for references specific to the protection of bats. The objective in the following Table 3-1 was found.

Table 3-1 Galway City Development plan 2023 – 2029 – Appropriate Assessment

Policies and Objesctives	Background recommendation	Recommendation
Policy 9.7.1 - Light Pollution	Lighting: Ensure that new developments meet the most up-to-date standards provided for lighting measures, including inclusion of dark zones, and sensor lighting and warmer spectrum lights. Bats and Lighting: Guidance Notes for: Planners, engineers, architects and developers (Bat Conservation Ireland, 2010) incorporates details of suitable lighting designs. Lighting on linear infrastructures can lead to disturbance or disruption along the route of an important ecological corridors, such as hedgerows and watercourses. Greenways and blue spaces often make amenity use of such linear features, and as such lighting should be carefully managed to ensure coherence of the supporting habitats of European sites, as outlined in Article 10 of the Habitats Directive.	Recommendation: Ensure the design of **external lighting minimises the incidence of light pollution, glare and spillage into the surrounding environment** and has due regard to the visual and residential amenities of surrounding areas and is so designed to mitigate adverse impacts on wildlife and ecosystems. Inclusion of **dark zones and sensor lighting** should be included where feasible. Lighting on linear infrastructures, including greenways and blueways, should be carefully managed to ensure the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.

3.1.2 Galway Co. Development Plan – 2022-2028

The adopted Galway County Development Plan was searched for references specific to the protection of bats. The following objective was found:

NHB 9 Protection of Bats and Bats Habitats
Seek to protect bats and their roosts, their feeding areas, flight paths and commuting routes. Ensure that development proposals in areas which are potentially important for bats, including areas of woodland, linear features such as hedgerows, stonewalls, watercourses and associated riparian vegetation which may provide migratory/foraging uses shall be subject to suitable assessment for potential impacts on bats. This will include an assessment of the cumulative loss of habitat or the impact on bat populations and activity in the area and may include a specific bat survey. Assessments shall be carried out by a suitably qualified professional and where development is likely to result in significant adverse effects on bat populations or activity in the area, development will be prohibited or require mitigation and/or compensatory measures, as appropriate. The impact of lighting on bats and their roosts and the lighting

up of objects of cultural heritage must be adequately assessed in relation to new developments and the upgrading of existing lighting systems.

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3.1.3 Bat Species' Range

The EIAR Study Area is within the range for all resident bat species in Ireland, as mapped in the Article 17 reporting.

3.1.4 National Bat Database of Ireland

A review of the National Bat Database of Ireland and National Lesser Horseshoe Bat Database on the 7th October 2025 yielded results of bats within a 10km hectad of the EIAR Study Area. The search yielded 7 bat species within 10km. Table 3-1 lists the bat species recorded within the hectad which pertains to the proposed works site (M22).

A review of the NBDC bat landscape map provided a habitat suitability index of 37.44 (red). This indicates that the area within which the EIAR Study Area is located has high habitat suitability for bat species.

Table 3-2 NBDC Bat Records

Hectad	Species	Date of last record	Database	Status
M22	Brandt's bat (*Myotis brandtii*)	24/09/2015	National Bat Database of Ireland	Annex IV
M22	Brown Long-eared Bat (*Plecotus auritus*)	14/08/2021	National Bat Database of Ireland	Annex IV
M22	Daubenton's Bat (*Myotis daubentonii*)	23/08/2021	National Bat Database of Ireland	Annex IV
M22	Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	02/06/2021	National Lesser Horseshoe Bat Database	Annex II, Annex IV
M22	Lesser Noctule (*Nyctalus leisleri*)	20/09/2022	Ireland's BioBlitz	Annex IV
M22	Natterer's Bat (*Myotis nattereri*)	11/08/2021	National Bat Database of Ireland	Annex IV
M22	Nathusius'pipistrelle (*Pipistrellus nathusii*)	30/05/2021	National Bat Database of Ireland	Annex IV
M22	Pipistrelle (*Pipistrellus pipistrellus* sensu lato)	15/09/2021	Ireland's BioBlitz	Annex IV
M22	Soprano Pipistrelle (*Pipistrellus pygmaeus*)	20/09/2022	Ireland's BioBlitz	Annex IV

3.1.5 Designated Sites

Within Ireland, the lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs). The EIAR Study Area is situated within the current known range for this species and there is one SAC designated for its protection within 10km of the EIAR Study Area. However, the roost for which the SAC is designated is located 33km away from the site (Table 3-3).

Table 3-3 Special Areas of Conservation within 10km designated for bats

Designated Site	Distance to Site	Approx. distance to the roost of the designated species	Species
Lough Corrib SAC	2.7km	33km	Lesser horseshoe bat

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One Natural Heritage Areas (NHAs), or proposed NHAs, designated for the protection of bats were identified within 10km of the EIAR Study Area (Table 3-4).

Table 3-4 European and National and proposed National Sites Designated to Bats

Designated Site	Distance to Site	Species	Roost Type
Killarainy Lodge, Moycullen	9.2km	Natterer's bat	Maternity

3.1.6 Habitat and Landscape

A review of mapping and photographs provided insight into the habitats and landscape features present within the EIAR Study Area. In summary, the primary land use within the EIAR Study Area is agriculture and animal husbandry.

A review of the GSI online mapper did not indicate the possible presence of any subterranean sites within the EIAR Study Area and a search of the National Monuments Database did not reveal the presence of any manmade subterranean sites within the EIAR Study Area.

A search of the UBSS Cave Database for the Republic of Ireland found three caves within 10km of the study area (Table 3-5).

Table 3-5 Caves within 10km of the EIAR Study Area

Name	Distance to Site	Description
Terryland/Coole's cave	2.9km	10m passage to collapsed chamber
Cooper's Cave	5.7km	3x1m opening to cave. Identified Lesser Horseshoe roost
Newry hole	6.8km	Chamber with calcite and pool

No national monuments are reported within the site.

3.1.6.1 Menlo Castle Restoration Project (2022)

Menlo Castle is a protected structure located approximately 3.5km from the EIAR Study Area, in the outskirts of Galway City. Regular monitoring has been conducted on Menlo Castle to record the number of roosting bats since the discovery of a lesser horseshoe bat maternity roost in 2000. Surveys have been conducted by consultants (including MKO) and the NPWS. A summary of results of previous surveys MKO conducted, along with surveys detailed in public reports are shown in Table 3-6.

Table 3-6 Number of species recorded roosting in Menlo Castle per survey year.

Year	Maximum count of roosting bats
2024	13 Lesser horseshoe bat
2023	6 Lesser horseshoe bat
2022	37 Lesser horseshoe bat 4 Soprano pipistrelles
2021	34 Lesser horseshoe bat
2018	20 Lesser horseshoe bat
2017	43 Lesser horseshoe bat
2016	35 Lesser horseshoe bat
2015	32 Lesser horseshoe bat
2014	35 Lesser horseshoe bat
2012	27 Lesser horseshoe bat
2009	38 Lesser horseshoe bat
2006	2 Lesser horseshoe bat
2005	5 – 10 Lesser horseshoe bat
2000	12+ Lesser horseshoe bat 20 Daubenton's bat 20+ Brown long-eared bat <30 Natterer's bat 1 Soprano pipistrelle

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3.1.7 Other Surveys

As part of the masterplan, surveys were conducted on a derelict bungalow located outside the southern boundary of the EIAR Study Area (IG Ref: M 26693 24436). Access was not granted for an interior inspection in 2023, but the structure was inspected in 2024. No evidence of roosting bats was found within structure during the interior inspection on 20th March 2024, however a small number of gaps potentially suitable for crevice dwelling bats was identified (Plate 3-29). It was assigned a *Low* roosting potential. Two Soprano pipistrelles were observed emerging from the structure during surveys in 2023. A demolition proposal for the bungalow has been granted in 2021 as part of a previous planning application. A derogation licence to remove the roost has been granted by NPWS on 25th April 2024 (DER-BAT-2024-103).

3.1.8 Conclusion of the Desktop Study

The desktop study has provided information about the existing bat activity up to 10km around the EIAR Study Area. The existing records showed the presence of nine bat species in the area including notably the Brandt's bat recorded in 2015 according to the NBDC records. The species considered vagrant in Ireland. The lesser horseshoe bat was also present in the existing records.

Lough Corrib SAC is the only designated site for lesser horseshoe bat within the Zone of Influence of the EIAR Study Area. The EIAR Study Area is not within the core 2.5km foraging range of the roost designated for which the SAC is designated. The site is located within 3.3km of the lesser horseshoe bat populations recorded at Menlo castle and is therefore outside of the core foraging range of the species. Menlo castle not designated as an SAC; however, the population of lesser horseshoe bats associated with this roost are considered of National Importance.

3.2 Field Surveys

3.2.1 Bat Habitat Appraisal

The EIAR Study Area consists primarily of recolonising bare ground, scrub, grassland and buildings and artificial surfaces. Treelines and hedgerows are also present at each boundary, and throughout the

southern section of the site. A detailed description of the habitats located onsite are presented in the Biodiversity Chapter of the accompanying Environmental Impact Assessment Report (EIAR).

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With regard to foraging and commuting bats, the site is considered of *Moderate* suitability due to the large amount of scrub habitat, current lack of artificial lighting, access to roosting resources and network of treelines and hedgerows throughout the site. However, there is low habitat diversity and lack of connectivity to the wider landscape. Built and open areas, such as building yards and open grassland are considered of *Low* suitability; however, they are usually surrounded by linear habitats and do not limit connectivity within the site.

With regard to roosting bats, trees which include mature deciduous trees present some suitable roosting spaces for bats, in varying capacity. Where trees are proposed for felling, they were subject to a roost inspection which is described below. In general, habitats within the site were assessed as having *Low* suitability to host roosting bats. Structures on site contain multiple access points and potential roosting features with varying levels of suitability and are assessed further below.

3.2.1.1 Preliminary Roost Assessment

3.2.1.1.1 *PRF Structures*

Ten structures were identified as part of the roost assessment effort. Each building was subjected to an interior inspection, to detect potential evidence of bat use. The majority of the buildings are located in close proximity to each other, within a farmyard located in the centre of the EIAR Study Area. The locations of the buildings are shown in Figure 3-1.

Stone Shed 1

Stone Shed 1 is a derelict old stone dwelling with a corrugated roof located within the farmyard (IG Ref: M 26647 24686) (Plate 3-1). Multiple potential access points were identified within crevices in the stone walls, and in gaps in the roof and doorways (Plate 3-2). Evidence of feeding remains in the form of butterfly wings were found within the structure (Plate 3-3, Plate 3-4). It was assigned a *Moderate* roosting potential. The shed was subject to a dusk emergence survey on the 2nd of May and 4th September, as detailed in Section 3.3.

Plate 3-1 Stone Shed 1 northern aspect

Plate 3-2 Access through the window

Plate 3-3 Feeding remains within Stone Shed 1

Plate 3-4 Stone Shed 1 interior

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Stone Shed 2

Stone Shed 2 is a derelict stone shed with a partially collapsed asbestos roof located to the southwest of Stone Shed 1 (IG Ref: M 26631 24667) (Plate 3-5 and 3-6). No evidence of roosting bats was found within the derelict shed during the inspection, however numerous potential access points and a number of gaps suitable for crevice dwelling bats were identified (Plate 3-7, Plate 3-8). Thus, it was assigned a *Moderate* roosting potential. The shed was subject to a dusk emergence survey on the 20th May and 3rd of July, as detailed in Section 3.3.

Plate 3-5 Stone Shed 2 northern aspect

Plate 3-6 Stone Shed 2 southern aspect

Plate 3-7 Stone Shed 2 interior

Plate 3-8 Large crack in interior stonework

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Stone Shed 3

Stone Shed 3 is a plastered stone stable building with a corrugated roof southeast of Stone Shed 1 (IG Ref: M 26654 24678) (Plate 3-9, Plate 3-10, Plate 3-11). Gaps in the doors and a large crack in the north-facing wall provide potential access for bats to the interior (Plate 3-12). No evidence of roosting bats was found within the derelict shed during the inspection, and little roosting potential was identified. Therefore, it was assigned a *Low* roosting potential. The shed was subject to a dusk emergence survey on 2nd of May and 4th September 2024, as detailed in Section 3.3.

Plate 3-9 Stone Shed 3, southern aspect

Plate 3-10 Stone Shed 3, northern aspect

Plate 3-11 Stone Shed 3, interior

Plate 3-12 Large crack in stonework on northern wall

Large Shed

The Large Shed is a farm building currently used for storage and machinery (IG Ref: M 26680 24691) (Plate 3-13). The structure is located on the eastern side of the farmyard and partially within the Proposed Development site boundary. No evidence of roosting bats was found within the structure during the inspection. Multiple potential access points were identified but no roosting features were present. It was therefore assigned a *Negligible* roosting potential.

Plate 3-13 Large Shed, western aspect

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Plate 3-14 Large Shed, interior

Shed

The Shed is a newly built, uninsulated concrete structure used for livestock and storage (IG Ref: M 26679 24676). The structure is open at the southern side, and has a corrugated roof (Plate 3-15 below). No evidence of roosting bats was found within during the inspection. It was therefore assigned a *Negligible* roosting potential.

Stables

The Stables are a newly built concrete structure with a corrugated iron roof located to the north of the Large Shed (IG Ref: M 26675 24699) (Plate 3-16 below). No evidence of roosting bats was found within the Stables, and no potential roost features were identified during the inspection. It was assigned a *Negligible* roosting potential.

Small Steel Shed

The Small Steel Shed is a newly constructed corrugated steel structure (IG Ref: M 26652 24660) (Plate 3-17 below). No evidence of roosting bats was found within the derelict shed. It was assigned a *Negligible* roosting potential.

Plate 3-15 Shed, southern aspect

Plate 3-16 Stables, southern aspect

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Plate 3-17 Small Steel Shed, northern aspect

Lean-to Shed

The Lean-to Shed is a corrugated iron shed that is connected to a stone wall on its south and eastern sides (IG Ref: M 26659 24665) (Plate 3-18). The north face of the structure is completely open (Plate 3-19). Interior roof felt provides roosting potential within this structure (Plate 3-20), though no evidence of roosting bats was found. It was assigned a *Low* roosting potential. The Lean-to shed was subject to a dusk emergence survey on 3rd July of 2024.

Plate 3-18 Northern aspect of lean-to shed

Plate 3-19 Lean-to shed interior

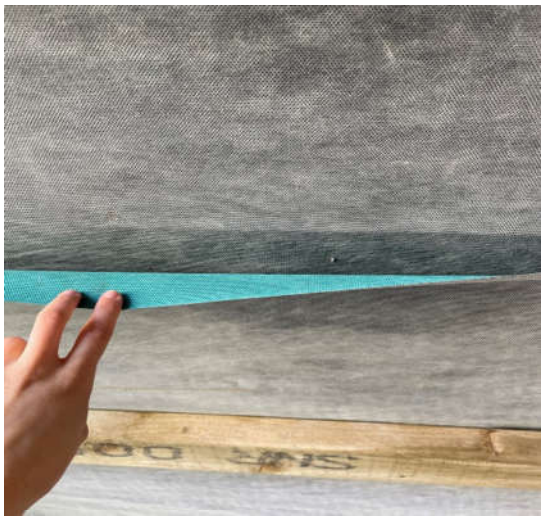

Plate 3-20 Interior roof felt

Plate 3-21 Gaps under corrugated roof

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Occupied House

The Occupied House (Plate 3-22 and 3-23) is located in the centre of the EIAR Study Area and outside the Proposed Development site boundary (IG Ref: M 26662 24635). The structure was inspected on the 20th August 2024. The roof of the structure has been newly renovated and the attic is currently in use (Plate 3-25). No evidence of roosting bats was found within the house and no access points for roosting bats were identified during the inspection. It was therefore assigned a *Negligible* roosting potential.

Plate 3-22 Occupied House, northern aspect

Plate 3-23 Occupied house, southwest aspect

Plate 3-24 Attic interior

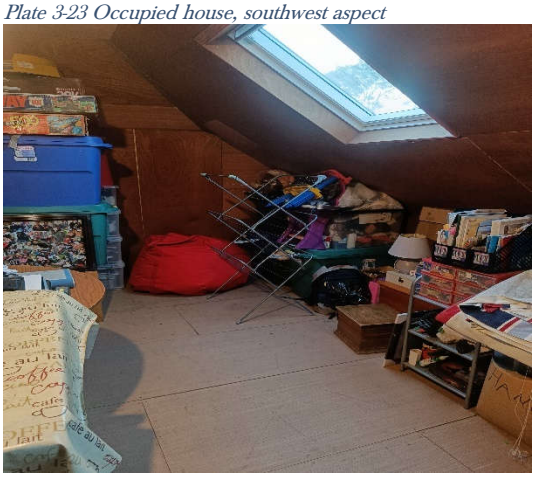

Plate 3-25 Attic interior

3.2.1.1.2 *PRF Trees*

The site comprised a network of treelines and hedgerows bordering existing tracks and roads, as well as agricultural grassland. Deciduous trees identified throughout the Proposed Development boundary and EIAR Study Area were assessed for their potential to host roosting bats. The majority of linear features comprised hedgerows with sparse, immature trees with no potential roosting features. 14 trees were identified as having suitable Potential Roosting Features. Those trees identified as having suitable PRFs were further inspected to determine whether bats were present. Details of the assessment are presented in Table 3-5, with pictures in Plate 26. The location of the trees assessed is presented in Figure 3-1.

Table 3-7 Tree inspection results

#	Species	Potential	Notes	Inspection Results	IG Ref	Plate
1	*Fagus* sp.	PRF-I	Single mature tree along a hedgerow, some ivy cover.	No evidence	M 26726 24670	3-26-1
2	*Acer* sp.	PRF-I	Mature tree with vertical crack.	No evidence	M 26774 24669	3-26-2
3	*Fraxinus* sp.	PRF-I	Mature tree with heavy ivy cover.	No evidence	M 26679 24756	3-26-3

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4	*Fraxinus* sp.	PRF-I	Mature tree with rot hole and ivy cover.	No evidence	M 26689 24749	3-26-4
5	*Crataegus* sp.	PRF-I	Some ivy cover.	No evidence	M 26673 24744	3-26-5
6	*Fraxinus* sp.	PRF-I	Broken limbs.	No evidence	M 26668 24732	3-26-6
7	*Fraxinus* sp.	PRF-I	Light ivy cover.	No evidence	M 26660 24720	3-26-7
8	*Fraxinus* sp.	PRF-I	Ivy cover.	No evidence	M 26639 24703	3-26-8
9	*Fraxinus* sp.	PRF-I	Multiple pruning cuts and rot holes.	No evidence	M 26637 24659	3-26-9
10	*Fraxinus* sp.	PRF-I	Mature tree with potential features including rot holes and broken limbs.	No evidence	M 26641 24657	3-26-10
11	*Crataegus* sp.	PRF-I	Mature tree.	No evidence	M 26576 24656	3-26-11
12	*Fraxinus* sp.	PRF-I	Mature tree with shallow cracks.	No evidence	M 26572 24646	3-26-12
13	*Fraxinus* sp.	PRF-I	Small, shallow crack	No evidence	M 26583 24569	3-26-13
14	*Fraxinus sp.*	PRF-I	Some ivy cover.	No evidence	M 26969 24864	3-26-14

Tree # 1

Tree # 2

Tree # 3

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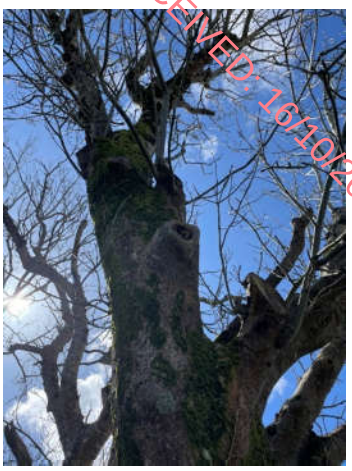
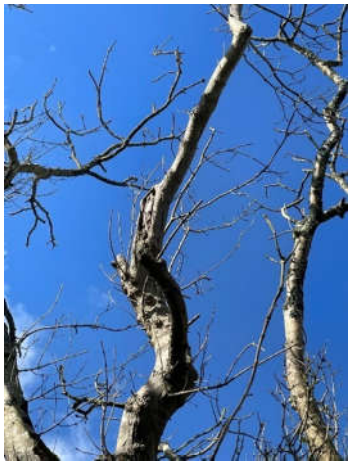
Tree # 4

Tree # 5

Tree # 6

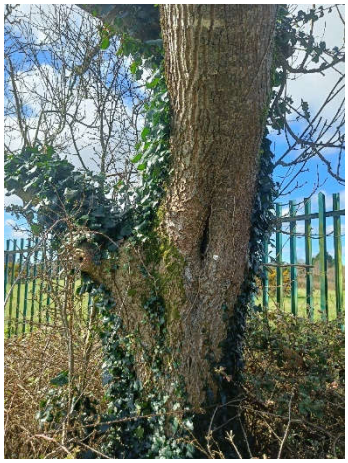


Tree # 7

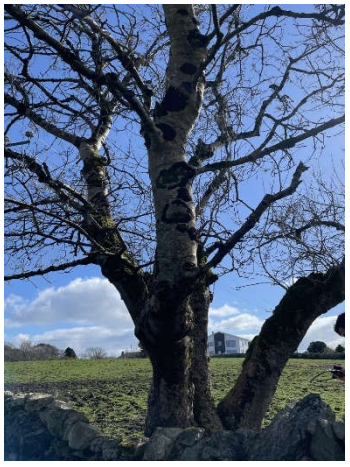


Tree # 8

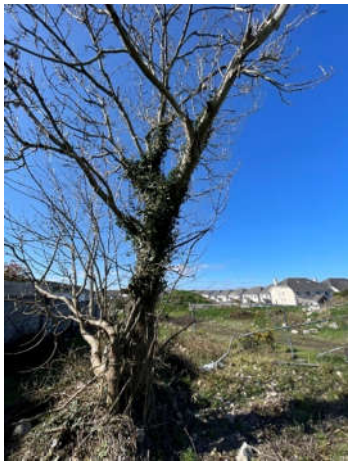
Tree # 9



Tree # 10



Tree # 11



Tree # 12

Tree # 13

Tree # 14

Plate 3-26 Trees within the study area.

Bunglaow - Outside of the EIAR Study Area Boundary

Map Legend

- EIAR Study Area Boundary
- Planning Application (red line) Boundary
- Trees Suitability Potential Roosting Features - Individual

Buildings Suitability

- Moderate
- Low
- Negligible
- None

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Drawing Title

Roost assessment

Project Title

King Knocknacarra LRD East

Drawn By	Checked By
NS	SF
Project No.	Drawing No.
240142-b	Fig 3-1
Scale	Date
1:1,000	15/10/2025

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3.2.2 Bat Activity Surveys

3.2.2.1 Manual Surveys

3.2.2.1.1 *Presence/Absence Surveys*

Nine structures with roosting potential were identified within the EIAR Study Area during surveys carried out at early design stages. Four of the structures within the EIAR Study Area with roosting potential were subjected to dusk emergence surveys. In addition, one structure with a confirmed roost located outside the EIAR Study Area was assessed. Table 3-6 summarises the results of the completed dusk surveys. Individual surveys are described below.

Table 3-8 Dusk emergence surveys surveys at PRFs.

PRF	Suitability	IG Ref.	Date	Results
Stone Shed 1	Moderate	M 26647 24686	2nd May 2024	No emerging bats
			4th September 2024	4 Soprano pipistrelles observed emerging.
Stone Shed 2	Moderate	M 26630 24667	20th May 2024	1 Soprano pipistrelle observed emerging
			3rd July 2024	No roosting bats.
Lean-to shed	Low	M 26658 24665	3rd July 2024	No roosting bats.
Stone Shed 3	Low	M 26656 24677	2nd May 2024	No roosting bats.
			4th September 2024	No roosting bats.
Bungalow (outside of the site boundary)	Low	M 26694 24436	3rd August 2023	2 soprano pipistrelles emerging

Stone Shed 1

During the first presence/absence survey, a low level of soprano and common pipistrelle foraging activity was recorded in the mature trees to the north of the structure but no bats were observed emerging from the structure during either of the surveys. During the second presence/absence survey, four soprano pipistrelles were observed emerging from the structure. Three individuals emerged from the southern aspect, while one emerged from a gap between the roof and stone wall at the northern side. During the survey, constant foraging activity was recorded in the trees to the north.

Stone Shed 2

One bat was observed emerging from the structure during the 20th May emergence survey. There was foraging activity along the treeline to the west of the structure. No bats emerged from the structure during the second survey on the 3rd of July. Some low foraging and commuting pipistrelle activity was recorded from the southeast, flying towards the north and west.

Stone Shed 3

No bats were observed emerging from the structure during either of the surveys.

Lean-to shed

No bats were observed emerging from the structure during the survey.

Bungalow

The structure is not part of the planning application. Two soprano pipistrelles were observed emerging from the structure. The roost is likely opportunistic.

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3.2.2.1.2 Night-time Bat Walkovers

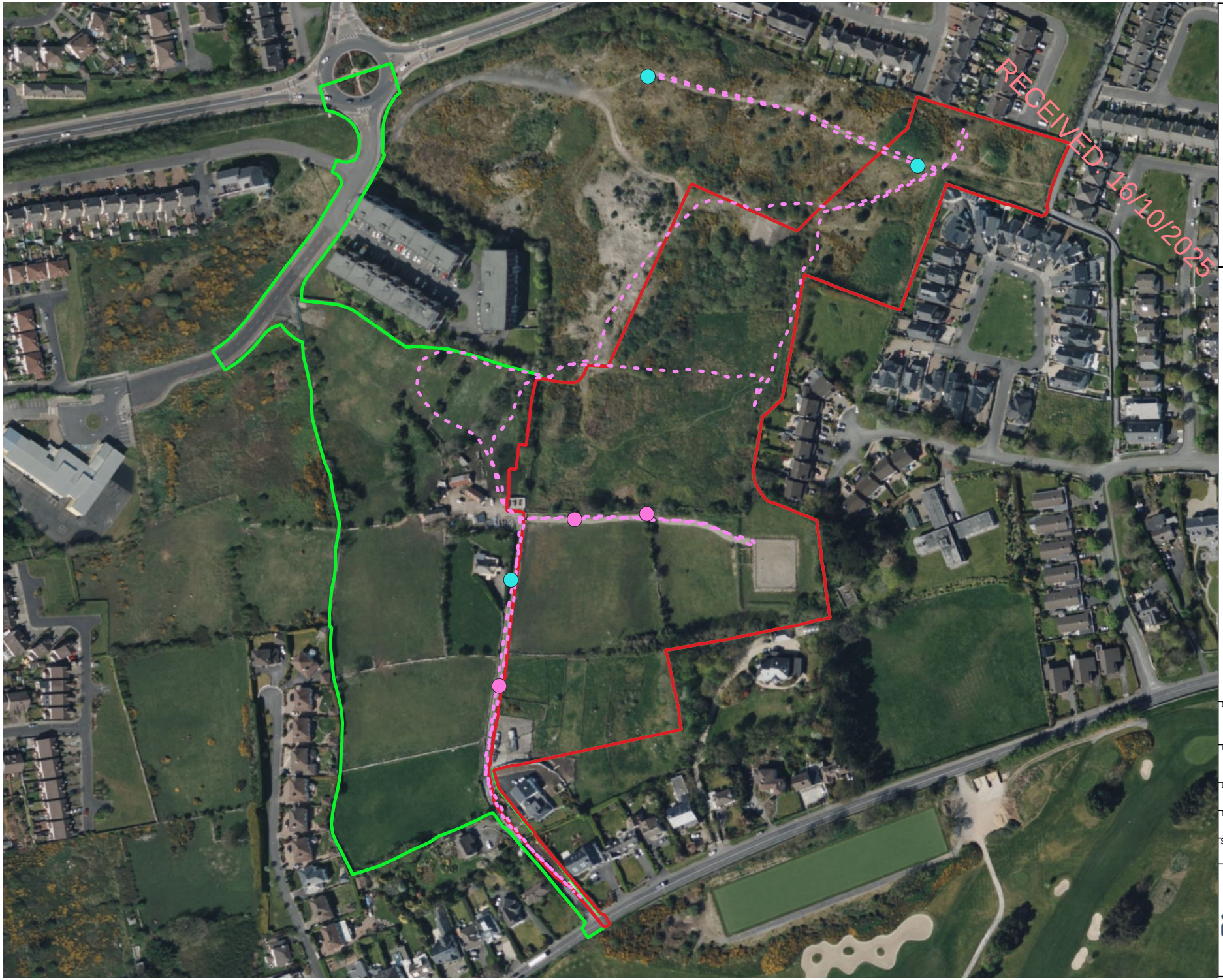
Manual activity surveys also comprised night-time bat walkovers at dusk. The survey effort for both 2023 and 2024 is presented in Table 3-7 below.

Table 3-9 Night Walkover survey results

Date	Km	Common pipistrelle	Soprano pipistrelle	Leisler's bat
03/08/2023	2.2km	3	3	-
24/04/2024	2.4km	39	64	4
06/06/2024	3.1km	2	24	1

Walkover surveys focused on the use of linear features and other habitats within the site by bats. The April survey included the northern section of the EIAR Study Area, while the June survey was undertaken within the central and southern area of the EIAR Study Area. Bat activity was dominated by soprano pipistrelles, with most of this taking place along the mature treeline outside of the eastern border of the EIAR Study Area. Common pipistrelle and Leisler's bats were also recorded to a lesser extent.

Figure 3-2 to Figure 3-4 present the spatial distribution of bat activity across the presence/absence and night walkover surveys.



Map Legend

- EIAR Study Area Boundary
- Planning Application (red line) Boundary
- Transect Route 03.08.2023

Species Results

- Common pipistrelle
- Soprano pipistrelle

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N

Drawing Title
Manual transect results
3rd of August 2023

Project Title
King Knocknacarra LRD East

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
240142-b	Fig 3-2
Scale	Date
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Map Legend

- EIAR Study Area Boundary
- Planning Application (red line) Boundary
- Transect Route 24.04.2024

Species Results

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle

N

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Drawing Title
Manual transect results
24th of April 2024

Project Title
King Knocknacarra LRD East

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
240142-b	Fig 3-3
Scale	Date
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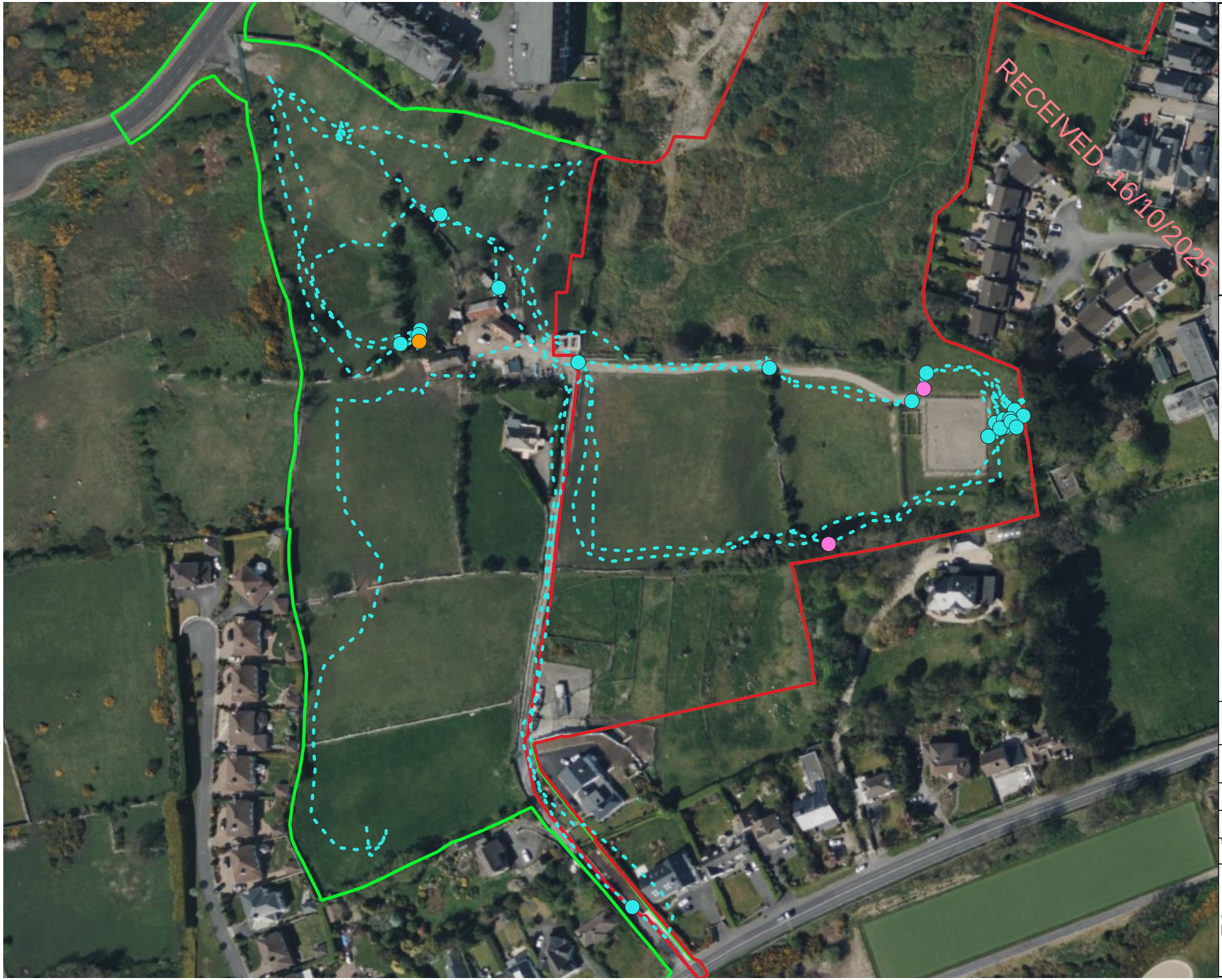

Map Legend

- EIAR Study Area Boundary
- Planning Application (red line) Boundary
- Transect Route 06.06.2024

Species Results

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle

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N

Drawing Title
Manual transect results
6th of June 2024

Project Title
King Knocknacarra LRD East

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
240142-b	Fig 3-4
Scale	Date
1:2,000	15/10/2025

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3.2.2.2 Static Detectors Surveys

In total 67,852 bat passes were recorded across 2023 and 2024 surveys. Analysis of the detector recordings positively identified six bats to species level with *Myotis* genus also present. Soprano pipistrelle (*Pipistrellus pygmaeus*) made up the vast majority of the activity recorded within the site (n=47,469), followed by common pipistrelle (*Pipistrellus pipistrellus*) (n=14,665). Leisler's bat *(Nyctalus leisleri*) (n=4,016) and brown long-eared bat (*Plecotus auritus*) (n=1,525). *Myotis* spp. (n=137) and Nathusius' pipistrelle (*Pipistrellus nathusii*) (n=40). No instances of lesser horseshoe bat were recorded at the site. Plate 3-27 shows total bat species composition recorded at the site.

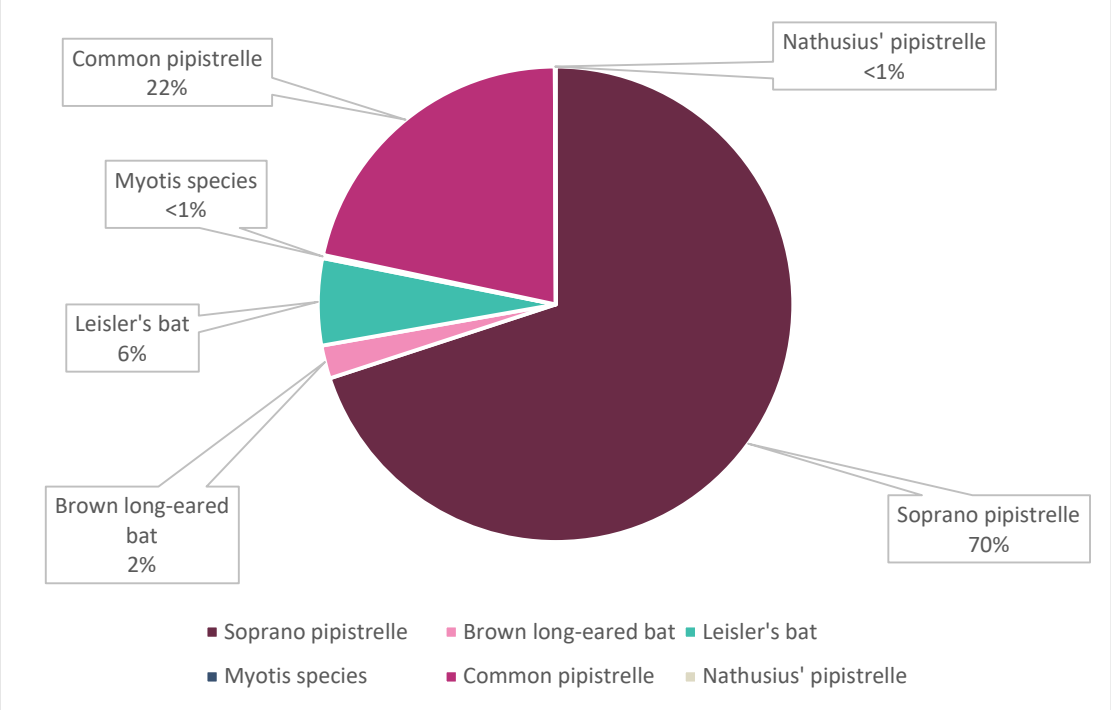

Plate 3-27 Total bat species composition

Plate 3-28 shows total bat passes per hour, per species per season. Overall bat activity was lowest during August 2023. However, while *Myotis* spp. and Nathusius' pipistrelle activity was low overall, the majority of their activity occurred during the August period. May and July 2024 recorded similar activity and species composition, though Leisler's bat activity was much higher in Spring than in Summer. Brown long-eared bat activity was also highest in the May 2024 season.

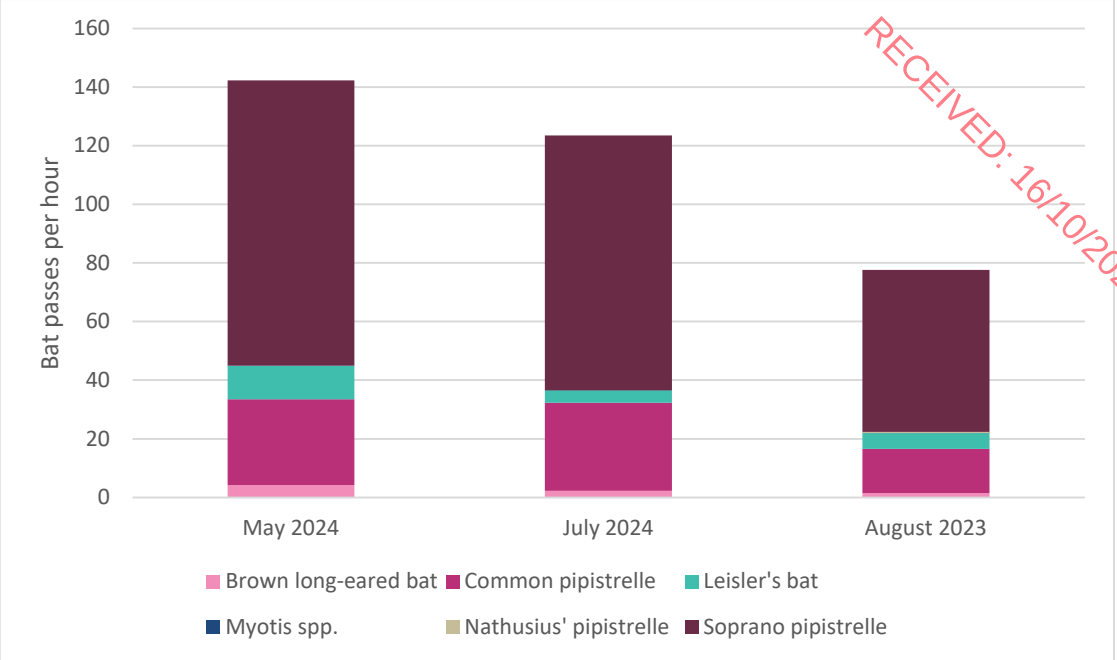

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Plate 3-28 Total bat passes per hour per season.

Error! Reference source not found.29 shows the nightly bat activity (bat passes per hour per night). The highest single night activity was recorded on the 23rd July 2024, with over 280 bat passes per hour. Activity was higher during the 2024 surveys (May and July) than that of the 2023 (August) survey. Activity on all nights was dominated by soprano pipistrelle, with common pipistrelle and Leisler's bat also present on all nights surveyed. Brown long-eared bat activity was highest during the May 2024, specifically between the 8th and 11th May 2024. *Myotis* spp. activity was low throughout the months surveyed. Nathusius' pipistrelle activity was low throughout, though the majority of activity was recorded during the Autumn 2023 survey.

Analysis of the detector recordings also highlighted the median bat passes per hour, per species, per detector, per month surveyed (Plate 3-30). The median bat passes per hour were higher in the May 2024 than during the July 2024 at all detectors, with the exception of D04. The median bat activity varied greatly between May and July 2024 at D02. Species composition was similar at all detectors, with soprano pipistrelle dominant at all detectors in all seasons. Brown long-eared bat activity was highest at D03 in May and July 2024. August 2023 had low brown long-eared bat activity.

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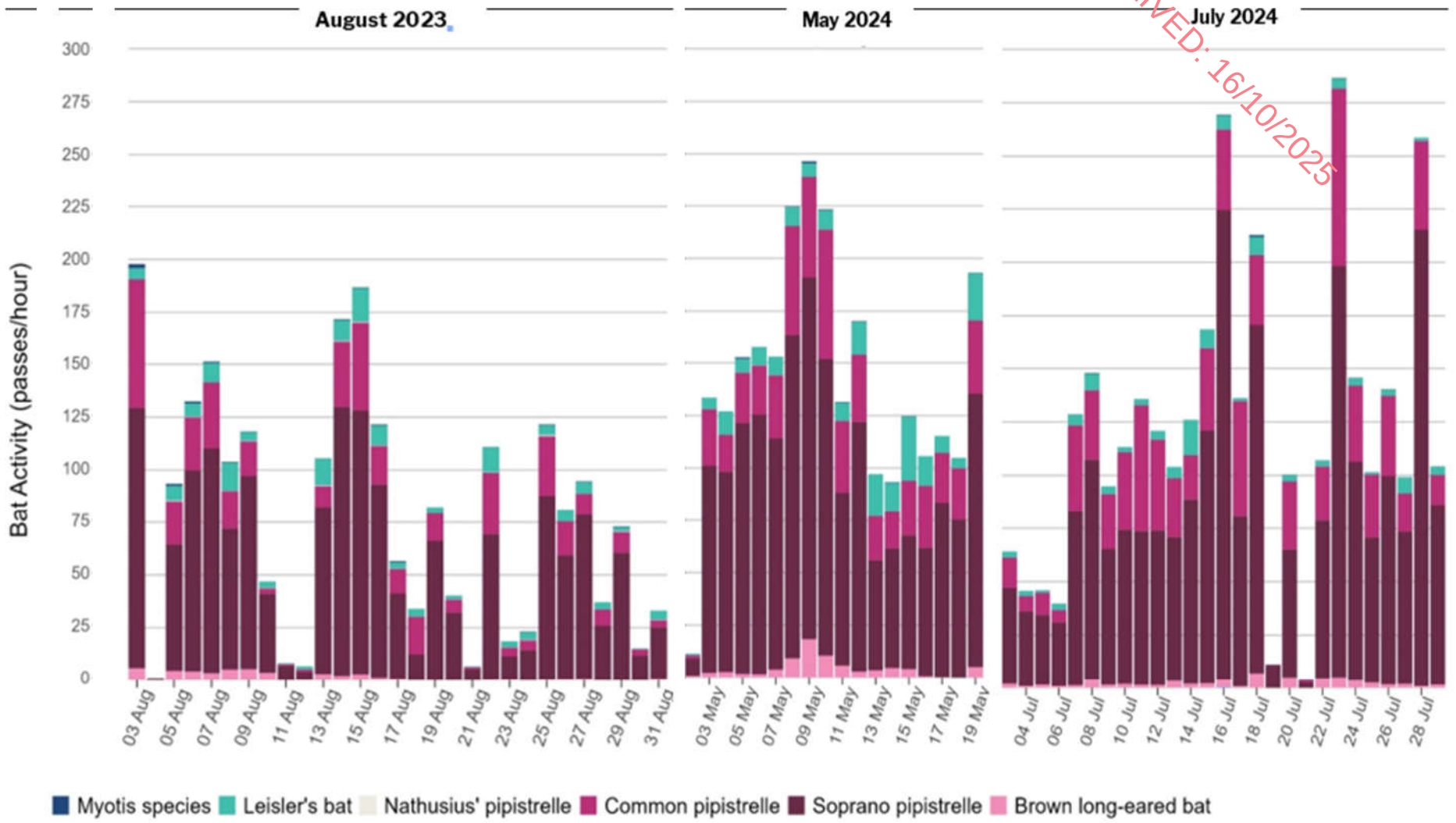

Plate 3-29 Bat passes per hour per species per night in 2024 and 2023

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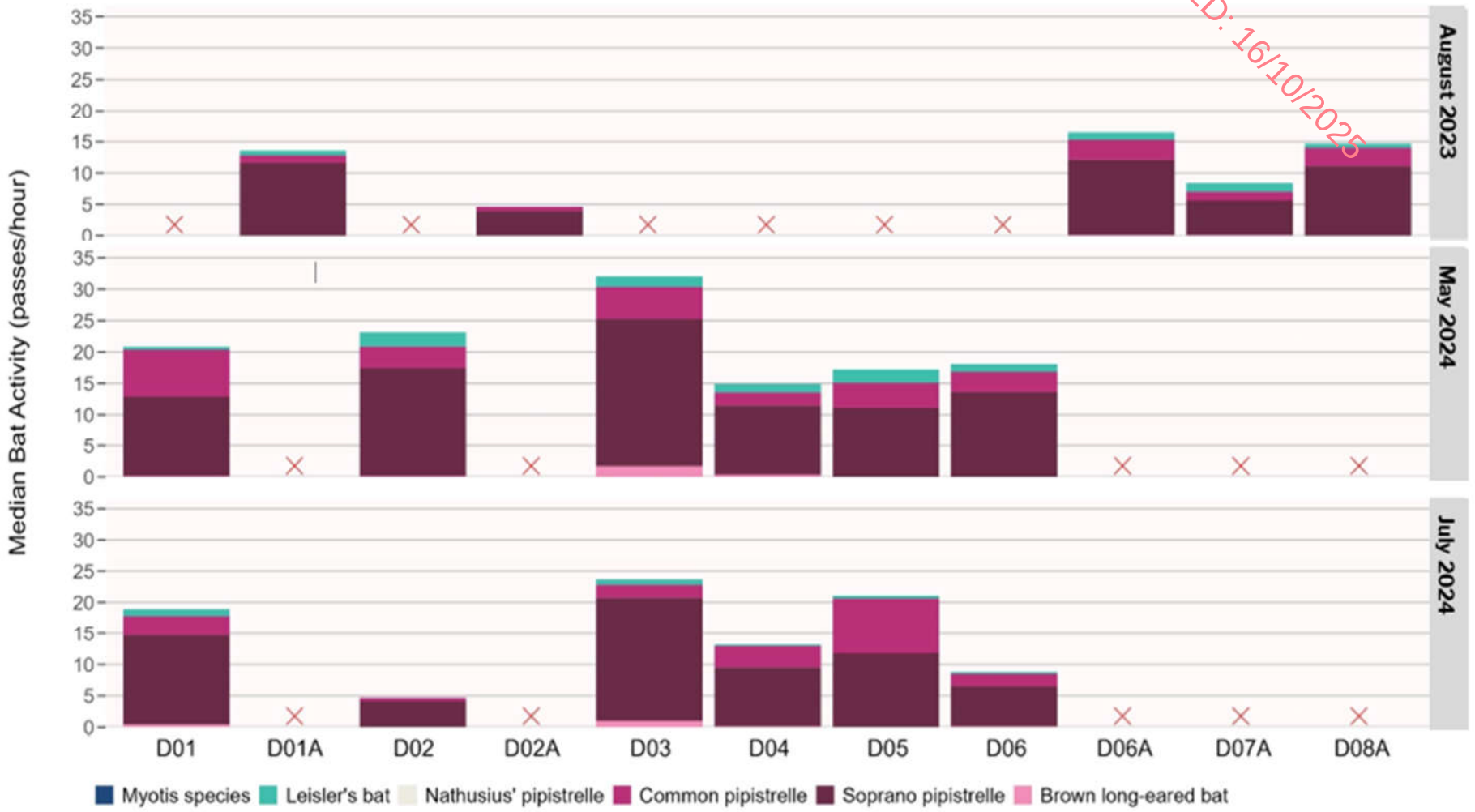

Plate 3-30 Median bat passes per hour per species per detector per season in 2024 and 2023. X denotes an area where no static detector was deployed during the period.

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4. DATA EVALUATION

4.1.1 Importance of Bat Population Recorded at the Site

Ecological evaluation within this section follows a methodology that is set out in Chapter three of the '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Acts 1976 (as amended). Bats as an Ecological Receptor have been assigned ***Local Importance (Higher value)*** on the basis that the habitats within the study area are utilized by a regularly occurring bat population of Local Importance.

The site does not have the potential to support a roosting site of ecological significance and no evidence of large roosts was found within the inspected structures during the surveys. Small numbers of roosting bats (soprano pipistrelle) were observed emerging from two structures during the surveys carried out in 2023 and 2024. No roosting site of National Importance (i.e. site greater than 100 individuals) was recorded within the site. No lesser horseshoe bat was recorded on site during the surveys.

4.1.2 Survey limitations

A comprehensive suite of bat surveys were undertaken of the EIAR Study Area. The surveys undertaken in accordance with BCT Guidance, provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of Proposed Development on bats receptors.

Access limitations can relate to static deployments and roost inspections:

- No significant access issues were encountered with the site during static deployments, as the detectors were deployment where intended.
- Access was gained throughout the site and within all structures identified. Where health and safety prevented full inspections to be completed, particularly into higher sections of the derelict buildings, the subsequent dusk surveys ensured no significant information was missed.

Survey limitations can relate to deployment coverage, data storage, equipment failure or deployment-related incidents:

- Good survey coverage of the site has been achieved, with five and six detectors being deployed in 2023 and 2024 respectively across the site covering the range of habitats present at the site.
- MKO employs data storage redundancy methods to ensure no data is lost from the field to final analysis - no data was lost.
- SD card corruption or fill-up can prevent data from being collected during deployments – no issues with on-site data storage were encountered.
- Bat detector's microphones are checked before every season to ensure they have good sensitivity for data collection, and detectors' software updates are installed as soon as they become available - no issues related to equipment were encountered during the surveys.
- Incidents during deployments, such as tampering or livestock interference, can prevent data from being collected effectively - no incidents were reported during the surveys.

Activity assessment limitations can relate to data analysis procedures and a lack of standardised and Ireland-based assessment methods:

- MKO's data analysis methods include manually checking of 100% of bat passes identified by Auto ID Software, as well as noise and no ID files. Where multiple species, or multiple individuals of the same species, are identified within the same call, only one is reported prioritising hard to detect species. This is due to the large volumes of data collected. While this method is likely to introduce a bias, it is not believed to affect the overall conclusions of the assessment, as only commonly recorded species might be underreported.

No limitations in the scope, scale or context of the assessment have been identified.

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5. CONCLUSION & RECOMMENDATIONS

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The following points set out the main conclusions following the completion of the surveys described above:

- Five bat species, as well as *Myotis* sp. were recorded commuting and foraging across the EIAR Study Area during the bat surveys carried out in 2023 and 2024, including soprano pipistrelle, common pipistrelle, Leisler's bat, brown long-eared bat, and Nathusius' pipistrelle.
- The existing landscape occurring within the EIAR Study Area provides *Moderate* quality habitats for commuting and foraging bats.
- Nine structures within the EIAR Study Area underwent detailed inspection. Two buildings were assessed with a *Moderate* roosting suitability, two with a *Low* suitability and five with a *Negligible* suitability.
- Two small active soprano pipistrelle roosts (4 individuals and 1 individual., respectively) were recorded during the 2024 surveys in Stone Shed 1 and Stone Shed 2, which are not included within the boundary for the current application and as such will be unaffected by the construction of the Proposed Development.
- No large permanent or maternity roosts were recorded within the Proposed Development site boundary.
- No lesser horseshoe bat was recorded.

The following measures are recommended to safeguard bats and mitigate for potential impacts:

- Two buildings within the EIAR Study Area were found to be active bat roosts. As such, a derogation licence from the NPWS will be required in order to restore/demolish buildings where evidence of bats was identified. The derogation licence is not required for the current planning application as these structures will not be affected by the construction of the Proposed Development. Should these structures be impacted by future phases of development within the wider EIAR Study Area a derogation licence will be sought at that point.
- A pre-commencement survey is recommended on each of the roost structures to assess the buildings prior to any works. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in 2023 and 2024.
- 14 trees were identified as PRF-I across the wider EIAR Study Area. 3 of these trees are proposed for removal under the current planning application. A pre-commencement survey, at the appropriate time of year, will be undertaken on trees to be felled/pruned with suitable potential roost features, by a qualified ecologist to ensure no changes in the baseline have occurred. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. If a bat roost is identified within any of the trees to be removed/pruned, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist.
- The lighting plan for the operational phase of the proposed development has been designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the *Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP, 2023)*, to minimise light spillage, thus reducing any potential disturbance to bats.
- The landscape and lighting plan have both been designed in collaboration with project ecologists to avoid significant effects on wildlife by design and to mitigate any unavoidable impacts. A dark corridor has been incorporated into the design of the proposed development to maintain suitable foraging and commuting habitat. Artificial lighting towards these features will be avoided or kept to a minimum, with unavoidable light spill stopping at 1Lux.

The surveys undertaken provide a good understanding of the use of the buildings and surrounding habitats by bats and the report provides recommendations to safeguard bats as part of the proposed development.

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APPENDIX 5

1. ASSESSMENT OF CUMULATIVE EFFECTS

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1.1 Plans

The following development plans have been reviewed and taken into consideration as part of this assessment:

- Galway County Development Plan 2022-2028
- Galway City Council Development Plan 2023-2029
- Regional Spatial and Economic Strategy: for the Northern and Western Regional Assembly – Project Ireland 2040
- 4th National Biodiversity Action Plan 2023-2027

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed

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Table 8.1 Review of plans

Plan	Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of development compliance with policy
Galway County Development Plan 2022-2028	It is the Policy of the Council in relation to: **Policy Objectives Natural Heritage and Biodiversity** **NHB 1 Natural Heritage and Biodiversity of Designated Sites, Habitats and Species:** Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan. Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999). Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network. **NHB 2 European Sites and Appropriate Assessment:** To implement Article 6 of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. All such projects and plans will also be required to comply with statutory Environmental Impact Assessment requirements where relevant. **NHB 3 Protection of European Sites:** No plans, programmes, or projects etc. giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects*.	The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development, were identified. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.